Read November 16, 1769.

# LXV. *Aſtronomical Obſervations made by Order of the* Royal Society, *at* Prince of Wales's Fort, *on the North-Weſt Coaſt of* Hudſon's Bay. *By* William Wales *and* Joſeph Dymond.

Mem. The Thermometer marked A was hung within the ſouthern, or lower Obſervatory; in ſuch a Part as we judged would be leaſt affected by the Fire; cloſe to, and with its Ball exactly of the ſame Height with, the Quickſilver in the Baſon of the Barometer: That marked B was hung without Doors, on the north Side of the Obſervatory.

The Floor of the Obſervatory might be above 50 Feet above the Level of the Sea at Low-water Mark.

| 1768 | Equal altitudes. Times by the clock. | | | | Zenith diſtance | Baro-meter. | Thermo-meters. | | Phænomena and Circum-ſtances. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Septemb. | Lower Wire ′ ″ | Middle Wire h ′ ″ | Upper Wire ′ ″ | Paſſed the Meridian. h ′ ″ | ° ′ | Inches | A. | B | Ob-ſerver | | |
| ☿ 14 | 17 15 | 19 20 54 | 24 33 | 23 49 18½ | 75 40 | 29,56 | 38½ | 38 | W. | ⊙'s U. L. | eaſterly |
| | 21 37 | 25 16 | 28 55 | | | | | | | ⊙'s L. L. | |
| ♃ 15 | 15 59 | 4 12 18 | 8 37: | | 75 40 | 29,61 | 46 | 42½ | W. | ⊙'s L. L. | weſterly |
| | 20 24 | 16 44 | 13 5 | | | | | | | ⊙'s U. L. | |
| ⊙ 18 | At noon wound up the clock. | | | | | | | | D. | | |
| ☽ 19 | 14 54 | 19 18 36 | 22 10 | 23 54 7 | 78 13 | 29,97 | 37 | 34 | D. | ⊙'s U. L. | eaſterly |
| | 19 15 | 22 56 | 26 37 | | | | | | | ⊙'s L. L. | |
| | 33 8 | 36 55 | 40 39 | | 76 0 | 29,98 | 37 | 34 | D. | ⊙'s U. L. | |
| | 37 37 | 41 25 | 45 11 | | | | | | | ⊙'s L. L. | |
| ♂ 20 | 9 36 | 4 | 2 7 | | 76 0 | 30,07 | 49 | 44 | D. | ⊙'s L. L. | weſterly |
| | 14 3 | 4 10 19 | 6 32 | 23 55 00,- | | | | | | ⊙'s U. L. | |
| | 28 1 | 24 16 | 20 37 | | 78 13 | 30,07 | 49 | 44 | D. | ⊙'s L. L. | |
| | 32 19 | | 25 1 | | | | | | | ⊙'s U. L | |
| | 36 56 | 19 40 44 | | | 76 0 | 30,06 | 38½ | 39 | D. | ⊙'s U. L. | eaſterly |
| | 41 26 | | | | | | | | | ⊙'s L. L. | |
| ☿ 21 | | | | | 76 0 | 30,10 | 56 | 56 | D. | ⊙'s L. L. | weſterly |
| | 4 33 | 4 | 12 3 | 23 55 57,- | | | | | | ⊙'s U. L. | |
| | 15 47 | 19 19 30 | 23 11 | | 79 0 | 29,97 | 45 | 44 | D. | ⊙'s U. L. | eaſterly |
| | 20 13 | 19 | 27 27 | | | | | | | ⊙'s L. L. | |
| | 40 42 | 19 44 34 | 48 22 | | 76 0 | 29,96 | 46 | 45 | D. | ⊙'s U. L. | |
| | 45 16 | 49 7 | 52 54 | | | | | | | ⊙'s L. L. | |
| | 0 47 | 20 4 44 | 8 41 | | 73 40 | 29,95 | 47 | 47 | D. | ⊙'s U. L. | |
| | 5 27 | 9 28 | 13 25 | | | | | | | ⊙'s L. L. | |
| ♃ 22 | 45 26 | 3 | 37 27 | | 73 40 | 29,89 | 62 | 65 | D. | ⊙'s L. L. | weſterly |
| | 50 8 | 46 9 | 42 9 | | | | | | | ⊙'s U. L. | |
| | 5 38 | 4 1 42 | 58 3 | | 76 0 | 29,89 | 62½ | 65 | D. | ⊙'s L. L. | |
| | 10 2 | 6 18 | 2 32 | | | | | | | ⊙'s U. L. | |
| | 30 36 | 26 52 | 23 5 | | 79 0 | 29,89 | 63 | 65 | D. | ⊙'s L. L. | |
| | 34 57 | 31 18 | 26 37 | | | | | | | ⊙'s U. L. | |

♂ Sept. 27 From the preceding obſervations, I have found that the clock is gaining 1′ 18″ per day on mean ſolar time, and in conſequence of that is now about 10′ 9″ too faſt: therefore at $20^{h.}$ we ſtopped it, altered the pendulum to make it go ſlower, and ſet it to nearly mean time, W. W.

| 1768 September | Equal altitudes. Times by the clock. Lower Wire. ′ ″ | Middle Wire h ′ ″ | Upper Wire ′ ″ | Paſſed the Merdian. h ′ ″ | Zenith diſtance ° ′ | Barometer. Inches. | Thermometers. A | B | Obſerver. | Phænomena and Circumſtances. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ☿ 28 | 38 24 | 20 42 54 | 47 22 | 23 52 16½ | 71 40 | 29,96 | 43½ | 44 | W. | ☉'s U. L. | eaſterly |
| | 43 46 | 48 20 | 42 55 | | | | | | | ☉'s L. L. | |
| ♃ 29 | 59 50 | 2 55 15 | 50 43 | | 71 40 | 29,98 | 56 | 55 | W. | ☉'s L. L. | weſterly |
| | 5 14 | 3 0 43 | 56 17 | | | | | | | ☉'s U. L. | |
| ♀ 30 | 47 22 | 19 51 18 | 55 15 | 23 53 13½ | 78 0 | 29,82 | 36 | 35 | W. | ☉'s U. L. | eaſterly |
| | 52 7 | 56 4 | 0 1 | | | | | | | ☉'s L. L. | |
| | 8 6 | 20 12 18 | | | 76 0 | | | | | ☉'s U. L. | |
| | 13 6 | 17 17 | 21 27 | | | | | | | ☉'s L. L. | |
| ♄ Oct. 1 | | | | | 76 0 | 29,72 | 49½ | 50½ | W. | ☉'s L. L. | weſterly |
| | | 3 | 40 24 | 23 53 46¼ | | | | | | ☉'s U. L. | |
| | 53 19: | 3 49 21 | 45 25 | | 78 0 | | | | | ☉'s L. L. | |
| | 58 4 | 54 9 | 50 14 | | | | | | | ☉'s U. L. | |
| | 42 9 | 19 46 5 | 50 0 | | 79 0 | 29,34 | 41 | 41 | D. | ☉'s U. L. | eaſterly |
| | 46 52 | 50 49 | 54 44 | | | | | | | ☉'s L. L. | |
| | 59 46 | 20 3 50 | 7 52 | | 77 0 | 29,33 | 41½ | 41 | D. | ☉'s U. L. | |
| | 4 36 | 8 43 | 12 45 | | | | | | | ☉'s L. L. | |
| ☉ 2 | At noon wound up the clock. | | | | | | | | D. | | |
| | 41 57 | 3 37 52 | 33 49 | | 77 0 | 29,18 | 50 | 50½ | D. | ☉'s L. L. | weſterly |
| | 46 48 | 42 44 | 38 43 | | | | | | | ☉'s U. L. | |
| | | 55 42 | 51 47 | | 79 0 | 29,18 | 50 | 51½ | D. | ☉'s L. L. | |
| | 4 20 | 4 0 26 | 56 33 | | | | | | | ☉'s U. L. | |
| ☉ 9 | At noon wound up the clock. | | | | | | | | W. | | |
| ♃ 13 | 32 35 | 20 37 5 | | | 78 20 | 29,86 | 28 | 26 | W. | ☉'s U. L. | eaſterly |
| | 37 54 | | 46 55 | | | | | | | ☉'s L. L. | |
| | 52 49 | 20 57 38 | | | 76 20 | 29,87 | 29 | 26½ | W. | ☉'s U. L. | |
| | 58 32 | 21 3 26 | | | | | | | | ☉'s L. L. | |
| ♀ 14 | 2 18 | 2 57 26 | | 0 0 53¾ | 76 20 | 29,90 | 41 | 37 | W. | ☉'s L. L. | weſterly |
| | 8 2 | 3 3 15 | | | | | | | | ☉'s U. L. | |
| | 22 54 | 18 21 | 13 54 | | 78 20 | | | | | ☉'s L. L. | |
| | 28 14 | 23 47 | 19 21 | | | | | | | ☉'s U. L. | |
| ☉ 16 | At noon wound up the clock. | | | | | | | | D. | | |
| | 37 54 | 20 42 28 | 46 59 | | 79 0 | 30,19 | 21 | 20 | D. | ☉'s U. L. | eaſterly |
| | 43 24 | 47 57 | 52 30 | | | | | | | ☉'s L. L. | |
| ☽ 17 | | 3 16 58 | 12 20 | 0 2 55,– | 79 0 | 30,20 | 31 | 28½ | D. | ☉'s L. L. | weſterly |
| | 27 2 | | 17 57 | | | | | | | ☉'s U. L. | |
| ☉ 23 | At noon wound up the clock. | | | | | | | | W. | | |
| ♂ 25 | Stopped the Clock 24′ 11″ and ſcrewed down the ball of the pendulum ¾ of a turn, W. W. | | | | | | | | | | |
| | 39 31 | 20 44 28 | 49 30 | 23 44 47½ | 80 0 | 29,78 | 15 | 8 | W. | ☉'s U. L. | eaſterly |
| | 45 28 | 50 24 | 55 44 | | | | | | | ☉'s L. L. | |
| | 2 23 | 21 7 53: | 13 32 | | 78 0 | 29,77 | 15 | 7½ | W. | ☉'s U. L. | |
| | 9 0 | 14 43 | 20 28 | | | | | | | ☉'s L. L. | |

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| 1768<br>October. | Equal altitudes. Times by the clock.<br>Lower Wire.<br>′ ″ | Middle Wire<br>h ′ ″ | Upper Wire<br>′ ″ | Paſſed the Meridian<br>h ′ ″ | Zenith diſtance<br>° ′ | Baro-meter.<br>Inches | Thermo-meters.<br>A | B | Ob-ſerver. | Phænomena and Circum-ſtances. |
|---|---|---|---|---|---|---|---|---|---|---|
| ☿ 26 | 19 48 | 2 14 6 | | | 78 0 | 29,64 | 19 | 15 | W. | ☉'s L. L. westerly |
| | 26 22: | 20 53 | 15 20:: | | | | | | | ☉'s U. L. |
| | 43 15 | 2 38 9 | 33 0: | | 80 0 | 29,63 | 18½ | 14½ | W. | ☉'s L. L. very hazy |
| | 49 12 | 44 14 | 39 12 | | | | | | | ☉'s U. L. |
| ☉ Nov. 6 | 57 45 | 8 1 15 | 4 42 | 13 19 27¼ | 71 0 | 29,63 | 3 | — 4½ | W. | Aldebaran eaſterly |
| | 8 2 | 11 32 | 14 59 | | 69 40 | | | | | |
| | | 18 27 21 | 30 51 | | 69 40 | 29,56 | — 3 | —11 | W. | Aldebaran weſterly |
| | 34 14 | 37 42 | 41 10 | | 71 0 | | | | | |
| ☿ 16 | 37 55 | 8 41 35 | 45 12 | 12 44 3¾ | 61 20 | 29,60 | + 9 | — 3 | D. | Aldebaran eaſterly |
| | 56 56 | 9 0 40 | 4 21 | | 59 0 | | | | | |
| | 31 10 | 16 27 28 | 23 45 | | 59 0 | 29,60 | + 1 | — 8 | D. | Aldebaran weſterly |
| | 50 14 | 46 32 | | | 61 20 | | | | | |
| ♃ 17 | 24 1 | 7 27 27 | 30 56 | 12 40 34″,- | 70 20 | 29,73 | — 1 | — 9 | D. | Aldebaran eaſterly |
| | 36 53 | 40 23: | 43 52 | | 68 40 | | | | | |
| | | 53 15 | 56 46 | | 67 0 | | | | | |
| | 31 21 | 17 27 50 | 24 24 | | 67 0 | 29,83 | — 7 | —12 | D. | Aldebaran weſterly |
| | 44 15: | 17 40 44 | 37 17 | | 68 40 | | | | | |
| | 57 7 | 53 40: | 50 13: | | 70 20 | | | | | |
| ♀ 18 | 1 52: | 8 5 27 | 8 56 | 12 37 1,7 | 65 0 | 29,88 | | —14 | D. | Aldeb. eaſterly, hazy |
| | 12 11 | 17 8 38 | 5 6 | | 65 0 | 29,90 | — 3 | —15 | D. | Aldebaran weſterly |
| ♄ 19 | 2 9 | 9 6 17 | 10 43 | | 57 0 | 29,85 | — 9 | — 6 | D. | Aldebaran eaſterly |
| | 17 31 | 21 30 | 25 27 | | 55 20 | | | | D. | Ditto Ditto |

☉ 27 At noon I went to wind up the clock, but found it had ſtopped at 6h 48′. I ſuppoſe it had been ſtopped by the cold laſt night, and therefore I kindled a fire to warm it before it was ſet a going. At about 6h 58′ by the alarm ſet the regulator a going and wound it up. J. D.

| 1768 | Lower Wire.<br>′ ″ | Middle Wire<br>h ′ ″ | Upper Wire<br>′ ″ | Paſſed the Meridian<br>h ′ ″ | Zenith diſtance<br>° ′ | Baro-meter.<br>Inches | Thermo-meters.<br>A | B | Ob-ſerver. | Phænomena and Circum-ſtances. |
|---|---|---|---|---|---|---|---|---|---|---|
| ♂ Dec. 6 | 13 28 | 6 16 58 | 20 24 | 11 22 11,1 | 69 20 | 29 94 | —11½ | —23½ | W. | Aldebaran eaſterly |
| | 26 19 | 29 49 | 33 18: | | 67 40 | | | | | |
| | 18 3 | 16 14 32 | | | 67 40 | 29 98 | —16 | —26 | W. | Aldebaran weſterly |
| | 30 56 | 27 24 | | | 69 20 | | | | | |
| ♃ 8 | 6 22 | 6 9 52 | 13 19 | 11 15 6⅓ | 69 20 | 30 21 | — 2 | —15 | W. | Aldebaran eaſterly |
| | 23 52 | 16 20 22 | 16 53 | | 69 20 | 30 14 | — 4½ | —14 | W. | Aldebaran weſterly |
| ♄ 10 | | 6 10 21 | 13 49 | 11 7 57,3 | 68 20 | 29 58 | —10 | —23½ | W. | Aldebaran eaſterly |
| | 17 11 | 6 20 41 | 24 9 | | 67 0 | | | | | |
| | 58 43½ | 15 55 13 | | | 67 0 | 29 51 | —23 | —32 | W. | Aldebaran weſterly |
| | 8 4 | 16 5 34 | 2 6 | | 68 20 | | | | | |
| ☉ 11 | 3 23 | 6 6 55 | | 11 4 29,8 | 68 20 | 29 50 | —27 | —37 | D. | Aldebaran eaſterly |
| | 16 21 | 19 51 | 23 20 | | 66 40 | | | | | |
| | | 15 49 9 | | | 66 40 | 29 39 | —31 | —42 | D. | Aldebaran weſterly |
| | 5 38 | 16 2 3 | | | 68 20 | | | | | |

At 21h I found that the regulator had ſtopped at 20h 16′ 3″, notwithſtanding the fire was very good, and by agreement with Mr. Wales, I let the fire go out, the ſtove being obliged to ſtand ſo near the ſide of the obſervatory that a little extraordinary fire would endanger the ſame, it having twice melted the lead at the back already; I alſo took of the weight off the regulator to eaſe it, and let it ſtand. J. D.

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| 1769 | Equal altitudes. Times by the clock. | | | | Zenith diſtance | Baro-meter. | Thermo-meters. | | Phænomena and Circum-ſtances. | |
|---|---|---|---|---|---|---|---|---|---|---|
| March. | Lower Wire ′ ″ | Middle Wire h ′ ″ | Upper Wire ′ ″ | Paſſed the Meridian h ′ ″ | ° ′ | Inches | A | B | Ob-ſerver | |
| ☿ 15 | 39 1<br>53 33 | 7 43 50<br>7 58 44 | 48 39<br>3 58 | 10 7 37¾ | 53 0<br>51 40 | 29,76 | —22 | —30 | W. | Regulus eaſterly |
| | 21 44<br>36 13 | <br>12 31 25 | <br>26 37 | | 51 40<br>53 0 | 29,68 | —28 | —34 | W. | Regulus weſterly |
| | N. B. These were made by the aſſiſtant Clock. | | | | | | | | | |
| ♂ 28 | Set Mr. Ellicott's clock a going. | | | | | | | | | |
| ☿ 29 | 32 48<br>3 29 | 9 36 25<br>47 7 | 39 59<br>50 44 | 13 56 26¼ | 57 20<br>56 0 | 29,81 | + 2 | 0 | W. | Arcturus eaſterly |
| | 29 22<br>40 6 | 17 25 43½<br>36 29 | 22 7<br>32 55 | | 56 0<br>57 20 | 29,80 | —10 | —17 | W. | Arcturus weſterly |
| ♃ 30 | 5 3<br>9 37 | 20 8 52<br>13 28 | 12 40<br>17 16 | | 70 40 | 29 79 | + 1 | + 8 | W. | ☉'s U. L.<br>☉'s L. L. | eaſterly |
| ♀ 31 | 6 50<br>11 25 | 4 2 59<br>7 35 | 59 11<br>3 49 | 0 7 45,2 | 70 40 | 29,83 | +14 | +15 | W. | ☉'s L. L.<br>☉'s U. L. | weſterly |
| ☉ April 2 | 43 24<br>47 45 | 19 47 4<br>51 25 | 50 42<br>55 5 | | 72 20 | 29,85 | — 8 | — 5 | D. | ☉'s U. L.<br>☉'s L. L. | eaſterly |
| ☽ 3 | 29 38<br>34 0 | 4 25 57<br>30 20 | 22 17<br>26 40 | 0 8 12,2 | 72 20 | 30,00 | + 5 | +12 | D. | ☉'s L. L.<br>☉'s U. L. | weſterly |
| ♂ 4 | 40 56<br>45 17 | 19 44 6<br>48 58 | 48 17<br>52 37 | | 72 0 | 30,12 | − 6 | — 3 | D. | ☉'s U. L.<br>☉'s L. L. | eaſterly |
| ☿ 5 | 32 29<br> | 4 28 49<br>33 15 | 25 8<br>29 35 | | 72 0 | 30,12 | +12 | +20 | D. | ☉'s L. L.<br>☉'s U. L. | weſterly |
| | 33 28<br>42 50 | 19 42 7<br> | 45 44<br>50 6 | | 72 0 | 30,08 | − 1 | + 8 | D. | ☉'s U. L.<br>☉'s L. L. | eaſterly |
| ♃ 6 | 35 16<br>39 36 | 4 31 36<br>35 57 | 28 0<br>32 21 | 0 8 33,4 | 72 0 | 30,14 | +14 | +16 | D. | ☉'s L. L.<br>☉'s U. L. | weſterly |
| ♄ 8 | 20 28<br>24 43 | 19 24 2<br>28 17 | 27 35<br>31 49½ | | 73 20 | 30,00 | + 6 | +12 | W. | ☉'s U. L.<br>☉'s L L. | eaſterly |
| ☉ 9 | 53 58<br>58 13 | 4 50 23<br>54 39 | 46 51<br>51 7½ | 0 8 50,8 | 73 20 | 29,99 | +22 | +27 | W. | ☉'s L. L.<br>☉'s U. L. | weſterly |
| ☽ 10 | 26 16<br>30 32 | 19 29 51<br>34 8 | 33 24<br>37 41 | | 72 0 | 30,20 | — 7 | — 6 | W. | ☉'s U. L.<br>☉'s L. L. | eaſterly |
| ♂ 11 | 48 41<br>52 56½ | 4 45 5<br>49 22 | 41 31<br>45 49 | 0 9 7,6 | 72 0 | 30,24 | + 8 | +12 | W. | ☉'s L. L.<br>☉'s U. L. | weſterly |
| ☿ 12 | 13 47::<br>18 3 | 19 17 21<br>21 35 | 20 53<br>25 5 | | 73 0 | 29,73 | + 5 | +12 | W. | ☉'s U. L.<br>☉'s L. L. | eaſterly |
| ♃ 13 | 1 44<br>5 57 | 4 58 10<br>5 2 24 | 54 41<br>58 55 | 0 9 23,7 | 73 0 | 29,63 | +23 | +17 | W. | ☉'s L. L.<br>☉'s U. L. | weſterly |

♄ 15 I find from a mean of 8 compariſons made in the courſe of this week, and that which immediately preceded the laſt, that the aſſiſtant clock gains on Mr. Ellicott's at the rate of 3″, 03 in 6 hours: but from a mean of 4 taken the week preceding the laſt, it gained only 2″ 81; and from the 4 which were made this week, it gains 3″ 25 in ſix hours. W. W.

2½″, 3″, 3″, 2″;
3″ 4″ 3′ 3″

| 1769 | Lower Wire ′ ″ | Middle Wire h ′ ″ | Upper Wire ′ ″ | Paſſed the Meridian h ′ ″ | Zenith diſtance ° ′ | Inches | A | B | Ob-ſerver | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ♄ 15 | 0 29<br>34 7 | 20 33 23<br>38 3 | 37 16<br>41 57 | | 62 48 | 29,91 | + 1 | + 6 | D. | ☉'s U. L.<br>☉'s L. L. | eaſterly |
| ☉ 16 | 46 20<br> | 3 42 25<br>47 5 | 38 32<br>43 12 | 0 9 50,– | 62 48 | 29 87 | +13 | +12 | D. | ☉'s L. L.<br>☉'s U. L. | weſterly |

| 1769 | Equal altitudes. Times by the clock. | | | | Zenith diſtance | Baro-meter | Thermo-meters | | | Phænomena and circum-ſtances | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| April | Lower Wire ′ ″ | Middle Wire h ′ ″ | Upper Wire ′ ″ | Paſſed the Meridian h ′ ″ | ° ′ | Inches | A | B | Obſerver | | |
| ♄ 22 | 14 6 | 20 17 48 | 21 32 | | 62 40 | 29,45 | +22 | +32 | W. | ☉'s U. L. | eaſterly |
| | 18 33 | 22 17 | 26 2 | | | | | | | ☉'s L. L. | |
| ☉ 23 | 3 48 | 4 0 1 | | 0 10 46,7 | 62 40 | 29,45 | 36 | 41 | W. | ☉'s L. L. | weſterly |
| | 8 14 | 4 4 31 | | | | | | | | ☉'s U. L | |
| | 3 12 | 19 6 41 | | | 71 20 | 29,60 | 26 | 28 | W. | ☉'s U. L. | eaſterly flying clouds |
| | 7 21 | 10 53 | 14 22 | | | | | | | ☉'s L. L | |
| | | 22 16½ | 25 46 | | 69 20 | | | | | ☉'s U. L. | |
| | 22 59 | 26 29 | 29 58 | | | | | | | ☉'s L. L. | |
| ☽ 24 | 59 35 | 4 56 3:: | 52 34 | 0 10 50,8 | 69 20 | 29,69 | 35 | 32 | W. | ☉'s L L | weſterly a little uncertain becauſe of clouds |
| | 3 49 | 5 0 17 | 56 47: | | | | | | | ☉'s U. L. | |
| | 15 14 | 11 43 | 8 13 | | 71 20 | 29,69 | 34 | 31 | W. | ☉'s L. L. | |
| | 19 26 | 15 56 | 12 29 | | | | | | | ☉'s U. L. | |
| | 1 0 | 21 | 9 15 | | 56 40 | 29,72 | 22 | 37 | W. | ☉'s U. L. | eaſterly thin cloud |
| | 5 54 | 21 10 6 | 14 15 | | | | | | | ☉'s L. L. | |
| ♂ 25 | 16 48 | 3 12 37 | 8 30 | 0 11 1,5 | 56 40 | 29,75 | 36 | 43 | W. | ☉'s L. L. | weſterly |
| | 21 45 | 17 36 | 13 30 | | | | | | | ☉'s U. L. | |
| | 25 12 | 19 28 43 | 32 13 | | 68 0 | 29,67 | 27 | 33 | W. | ☉'s U. L. | eaſterly |
| | 29 26 | 32 57 | 36 27 | | | | | | | ☉'s L. L. | |
| ☿ 26 | 53 39 | 4 50 8 | | 0 11 7,5 | 68 0 | 29,59 | 43 | 45 | W. | ☉'s L. L. | weſterly very haz. |
| | 57 52 | 54 23 | 50 50:: | | | | | | | ☉'s U. L. | |
| | 33 46: | 21 38 21 | 42 54 | | 52 40 | 29,66 | 36 | 44 | W. | ☉'s U. L. | eaſterly |
| | 39 17 | 43 54 | 48 28 | | | | | | | ☉'s L. L. | |
| ♃ 27 | 43 50 | 2 39 11 | 34 36 | 0 11 14,3 | 52 40 | 29.83 | 49 | 57 | W. | ☉'s L. L. | weſterly |
| | 49 22 | 44 47 | 40 12 | | | | | | | ☉'s U. L. | |
| | 21 10 | 19 24 41 | 28 10 | | 68 0 | 29,92 | 33 | 35 | W. | ☉'s U. L. | eaſterly |
| | 25 23 | 28 55 | 32 25 | | | | | | | ☉'s L. L. | |
| ♀ 28 | 58 5 | 4 54 32 | 51 3 | 0 11 19,0 | 68 0 | 29.99 | 42 | 48 | W. | ☉'s L. L. | weſterly |
| | 2 17: | 58 45 | 55 15 | | | | | | | ☉'s U. L. | |
| ☿ May 3 | 5 26 | 20 9 5 | 12 42 | | 61 0 | 30,20 | 32 | 38 | D. | ☉'s U. L. | eaſterly |
| | 9 43 | 13 20 | 16 57 | | | | | | | ☉'s L. L. | |
| ♃ 4 | 15 43 | | 8 26 | | 61 0 | 30,20 | 45 | 49 | D. | ☉'s L. L. | weſterly |
| | 19 59 | 4 16 21 | 12 43 | 0 12 22½ | | | | | | ☉'s U. L. | |
| | 3 34 | 20 7 10 | 10 47 | | 61 0 | 30,16 | 39 | 47 | D. | ☉'s U. L. | eaſterly |
| | 7 48 | 11 26 | 15 2 | | | | | | | ☉'s L. L. | |
| ♀ 5 | 17 37 | 4 13 58 | 10 22 | 0 12 22,8 | 61 0 | 30,03 | 55 | 62 | D. | ☉'s L. L. | weſterly |
| | 21 52 | 18 14 | 14 39 | | | | | | | ☉'s U. L. | |
| ♃ 11 | 39 32 | 19 43 6 | 46 37 | | 62 40 | 29,97 | 24 | 22 | W. | ☉'s U. L. | eaſterly |
| | 43 47 | 47 20 | 50 51 | | | | | | | ☉'s L. L. | |
| ♀ 12 | 44 55 | 4 41 22 | 37 53 | 0 14 3,05 | 62 40 | 30,12 | 27 | 25 | W. | ☉'s L L. | weſterly |
| | 49 10 | 45 37 | 42 6 | | | | | | | ☉'s U. L. | |
| | 59 56 | 5 7 36 | 15 46 | | 53 20 | 30,13 | 27 | 25 | W. | ☽'s U. L. eaſterly | |
| | 17 43 | 27 5 | 37 45 | | 52 20 | 30,14 | 27 | 24 | W. | | |
| | 53 49 | 7 44 29 | | | 52 20 | 30,15 | 25 | 21 | W. | ☽'s U. L. weſterly | |
| | 11 29 | 8 3 55 | 55 48 | | 53 20 | 30,15 | 24 | 20 | W. | | |
| | 47 13 | 8 52 7 | 57 6 | 10 58 29,3 | 44 40 | 30,14 | 23 | 17 | W. | Arcturus eaſterly | |
| | 2 9 | 9 7 31 | 12 59 | | 43 20 | 30,14 | 23 | 16 | W. | | |
| | 54 52 | 12 49 31 | 44 1:: | | 43 20 | 30,14 | 19 | 14 | W. | Arcturus weſterly | |
| | 9 44 | 13 4 49 | 59 50 | | 44 40 | 30,14 | 19 | 14 | W. | | |

| 1769 | Equal altitudes. Times by the clock. | | | | Zenith diſtance | Baro-meter | Thermo-meters | | Phænomena and Circumſtances. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| May | Lower Wire | Middle Wire | Upper Wire | Paſſed the Meridian | | Inches | A | B | Ob-ſerver | | |
| | ′ ″ | h ′ ″ | ′ ″ | h ′ ″ | ° ′ | | | | | | |
| ☽ 22 | 49 48: | 20 53 36: | 57 24 | | 52 20 | 29,66 | 32 | 45 | W. | ☉'s U. L. | Eaſt. unc. becauſe of clouds |
| | 54 21 | 58 10 | 1 59 | | | | | | | ☉'s L. L. | |
| ♂ 23 | 1 19 | 3 37 29 | 33 40 | 0 17 38,3 | 52 20 | 29,75 | 40 | 46 | W. | ☉'s L. L. | weſt. flying clouds |
| | 5 50 | 42 3 | 38 16 | | | | | | | ☉'s U. L. | |
| | At 20$^{h}$ put the clock back. | | | | | | | | W. | | |
| | 10 25 | 20 14 5 | 17 45 | | 54 20 | 29,82 | 27 | 39 | W. | ☉'s U. L. | eaſterly hazy |
| | 14 48 | 18 29 | 22 11 | 23 56 1,0 | | | | | | ☉'s L. L. | |
| ☿ 24 | 37 38 | 3 33 56 | 0 15 | | 54 20 | 29,89 | 44 | 48 | W. | ☉'s L. L. | weſterly hazy |
| | 1 59 | 38 18 | 34 39 | | | | | | | ☉'s U. L. | |
| ♃ 25 | 14 7 | 20 17 48 | 21 31 | 23 56 43,7 | 53 40 | 29,81 | 34 | 46 | W. | ☉'s U. L. | eaſt. very hazy |
| | 13 31 | 22 13 | | | | | | | | ☉'s L. L. | |
| ♀ 26 | 5 18 | 3 31 35 | | | 53 40 | 29,70 | 47 | 59 | W. | ☉'s L. L. | weſt. flying clouds |
| | 9 42 | 36 0 | 32 18 | | | | | | | ☉'s U. L. | |
| ☉ 28 | 58 33 | 19 2 3 | 5 30½ | 23 57 50,3 | 63 0 | 29,78 | 31 | 34 | D. | ☉'s U. L. | eaſterly |
| | 2 39 | 6 1[illegible]½ | 9 3[illegible]½ | | | | | | | ☉'s L. L. | |
| | 14 1 | 17 31 | 20 58 | | 61 0 | | | | | ☉'s U. L. | |
| | 8 8½ | 21 33 | 25 6 | | | | | | | ☉'s L. L. | |
| ☽ 29 | 37 57: | 4 34 23½ | | | 61 0 | 29,85 | 47 | 49 | D. | ☉'s L. L. | weſt. the ☉ almoſt covered with clo. at times |
| | 42 3: | 38 35: | 35 6: | | | | | | | ☉'s U. L. | |
| | 53 23 | 49 50: | 46 25 | | 63 0 | | | | | ☉'s L. L. | |
| | 57 28: | 53 59: | 50 32: | | | | | | | ☉'s U. L. | |
| | 57 56 | 19 1 25 | 4 52 | 23 58 12½ | 63 0 | 29,88 | 34 | 36 | D. | ☉'s U. L. | eaſterly |
| | 2 3½ | 5 31½ | 8 59 | | | | | | | ☉'s L. L. | |
| | 13 25 | 16 54½ | 20 23 | | 61 0 | 29,88 | 35 | 38 | D. | ☉'s U. L. | |
| | 7 32½ | 21 3 | 24 31 | | | | | | | ☉'s L. L. | |
| ♂ 30 | 9 16 | 4 35 44: | | | 61 0 | 29,90 | 49 | 49 | D. | ☉'s L. L. | weſt. very hazy |
| | 43 21 | 39 51 | 36 25 | | | | | | | ☉'s U. L. | |
| | 54 44 | 51 13½ | 47 49: | | 63 0 | 29,89 | 49 | 49 | D. | ☉'s L. L. | weſterly |
| | 58 51 | 55 21½ | 51 54½ | | | | | | | ☉'s U. L. | |
| ♀ June 2 | 56 5 | 18 59 34½ | | 23 59 47½ | 63 0 | 29,95 | 35 | 41 | D. | ☉'s U. L. | eaſterly |
| | 0 11 | 19 3 39½ | 7 16 | | | | | | | ☉'s L. L. | |
| | 11 32 | 15 2 | 18 31 | | 61 0 | 29,95 | 36 | 42 | D. | ☉'s U. L. | |
| | 15 40 | 19 10½ | 22 37½ | | | | | | | ☉'s L. L. | |
| | 27 4 | 30 34½ | 34 4 | | 59 0 | 29,95 | 36 | 43 | D. | ☉'s U. L. | |
| | 31 12½ | 34 43½ | 38 12½ | | | | | | | ☉'s L. L. | |
| | 42 40 | 46 13 | 49 44 | | 57 0 | 29,95 | 37 | 45 | D. | ☉'s U. L. | |
| | 46 51½ | 50 25½ | 53 56 | | | | | | | ☉'s L. L. | |
| ♄ | 2 58 | 4 9 25 | | | 57 0 | 29,89 | 52 | 58 | D. | ☉'s L. L. | weſterly |
| | | 13 38 | 10 8 | | | | | | | ☉'s U. L. | |
| | 28 41½ | 25 10½ | 21 38 | | 59 0 | 29,89 | 53 | 59 | D. | ☉'s L. L. | |
| | 32 47 | 29 17½ | 25 47½ | | | | | | | ☉'s U. L. | |
| | 44 11 | 40 41½ | 37 14 | | 61 0 | 29,89 | 53 | 59 | D. | ☉'s L. L. | |
| | 48 20 | 44 50 | 41 22 | | | | | | | ☉'s U. L. | |
| | 59 39½ | 56 11½ | 52 38½ | | 63 0 | 29,89 | 53 | 60 | D. | ☉'s L. L. | |
| | 3 49 | 5 0 18 | | | | | | | | ☉'s U. L. | |
| | | 18 59 10 | 2 36 | | 63 0 | 29,65 | 38 | 42 | W. | ☉'s U. L. | eaſterly |
| | 59 51 | 19 3 20 | 5 46 | | | | | | | ☉'s L. L. | |

| 1769 | | Equal altitudes. Times by the clock. | | | | | | | | | | Zenith diſtance | | Baro-meter | Thermo-meters | | Phænomena and Circum-ſtances. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| June | | Lower Wire | | Middle Wire | | | Upper Wire | | Paſſed the Meridian | | | | | Inches | A | B | Ob-ſerver | | |
| | | ′ | ″ | h | ′ | ″ | ′ | ″ | h | ′ | ″ | ° | ′ | | | | | | |
| ♄ | 3 | 11 | 9 | | 14 | 36 | 18 | 2 | | | | 61 | 0 | 29,65 | 38 | 42 | W. | ⊙'s U. L. | eaſterly very hazy |
| | | 15 | 18 | | 18 | 45 | 22 | 12 | | | | | | | | | | ⊙'s L. L. | |
| | | 26 | 37 | 19 | 30 | 7 | 33 | 35 | | | | 59 | 0 | 29,65 | 39 | 45 | W. | ⊙'s U. L. | |
| | | 30 | 47 | | | | 37 | 48 | | | | | | | | | | ⊙'s L. L. | |
| | | 42 | 14 | | 45 | 47 | 49 | 18 | | | | 57 | 0 | 29,64 | 40 | 46 | W. | ⊙'s U. L. | |
| | | 46 | 29 | | 50 | 2 | 53 | 32 | | | | | | | | | | ⊙'s L. L. | |
| ⊙ | 4 | | | 4 | 10 | 34:: | 7 | 1: | 0 | 0 | 9,3 | 57 | 0 | 29,55 | 52 | 54 | W. | ⊙'s L. L. | weſterly very un-certain becauſe of clou. |
| | | | | | | | 11 | 18:: | | | | | | | | | | ⊙'s U. L. | |
| | | | | 4 | 26 | 14 | 22 | 45 | | | | 59 | 0 | 29,55 | 52 | 53 | W. | ⊙'s L. L. | |
| | | 33 | 56:: | | 30 | 28 | | | | | | | | | | | | ⊙'s U. L. | |
| | | 45 | 17· | | 41 | 49 | | | | | | 61 | 0 | 29,55 | 51 | 52 | W. | ⊙'s L. L. | |
| | | 49 | 27: | | 45 | 56:: | 42 | 33 | | | | | | | | | | ⊙'s U. L. | |
| | | 18 | 36 | 19 | 22 | 6 | | | | | | 60 | 0 | 29,47 | 37 | 43 | W. | ⊙'s U. L. | eaſterly |
| | | 22 | 46: | | | | 29 | 47 | | | | | | | | | | ⊙'s L. L. | |
| | | 34 | 8 | | 37 | 36 | 41 | 7 | | | | 58 | 0 | 29,47 | 38 | 43 | W. | ⊙'s U. L. | |
| | | 38 | 18 | | 41 | 49 | 45 | 26 | | | | | | | | | | ⊙'s L. L. | |
| | | 49 | 49 | | 53 | 22 | 56 | 51 | | | | 56 | 0 | 29,47 | 38 | 44 | W. | ⊙'s U. L. | |
| | | 54 | 5 | | 59 | 38 | 1 | 9 | | | | | | | | | | ⊙'s L. L. | |
| ☽ | 5 | 7 | 21 | 4 | | | | | 0 | 0 | 34,8 | 56 | 0 | 29,46 | 49 | 53 | W. | ⊙'s L. L. | weſterly very cloudy and un-certain |
| | | | | 4 | 8 | 2 | | | | | | | | | | | | ⊙'s U. L. | |
| | | 23 | 5 | | | | 16 | 2:: | | | | 58 | 0 | 29,46 | 50 | 52 | W. | ⊙'s L. L. | |
| | | 27 | 18 | | 23 | 45:: | 20 | 17 | | | | | | | | | | ⊙'s U. L. | |
| | | 38 | 39 | | 35 | 8 | 31 | 40 | | | | 60 | 0 | 29,46 | 50 | 52 | W. | ⊙'s L. L. | |
| | | 42 | 51 | | 39 | 19 | | | | | | | | | | | | ⊙'s U. L. | |
| ♄ | 10 | 10 | 15½ | 19 | 13 | 44 | | | | | | 61 | 0 | 29,49 | 37 | 41 | D. | ⊙'s U. L. | eaſterly |
| | | 14 | 23 | | 17 | 51 | 21 | 17½ | | | | | | | | | | ⊙'s L. L. | |
| | | 41 | 16 | | 44 | 45½ | 48 | 17 | | | | 57 | 0 | | | | | ⊙'s U. L. | |
| | | 45 | 26 | | 48 | 59 | 52 | 30½ | | | | | | | | | | ⊙'s L. L. | |
| ⊙ | 11 | 21 | 11 | 4 | 17 | 38 | 14 | 8½ | 0 | 3 | 14,3 | 57 | 0 | 29,66 | 55 | 54 | D. | ⊙'s L. L. | weſterly |
| | | 25 | 22½ | | 21 | 49½ | 18 | 19 | | | | | | | | | | ⊙'s U. L. | |
| | | 52 | 16 | | 48 | 47 | 45 | 20 | | | | 61 | 0 | 29,67 | 55 | 55 | D. | ⊙'s L. L. | |
| | | 56 | 25½ | | 52 | 54½ | | | | | | | | | | | | ⊙'s U. L. | |
| ☽ | 19 | 25 | 14 | 19 | 28 | 44 | 32 | 12 | | | | 59 | 20 | 29,75 | 44 | 48 | W. | ⊙'s U. L. | eaſterly |
| | | 29 | 24 | | 32 | 55 | 36 | 23 | | | | | | | | | | ⊙'s L. L. | |
| | | 40 | 47 | | 44 | 18 | 47 | 47½ | | | | 57 | 20 | | | | | ⊙'s U. L. | |
| | | 44 | 59 | | 48 | 30 | 50 | 0½ | | | | | | | | | | ⊙'s L. L. | |
| ♂ | 20 | 29 | 56 | 4 | 26 | 25 | 22 | 54 | 0 | 7 | 26¼ | 57 | 20 | 29,72 | 63 | 63 | W. | ⊙'s L. L. | weſterly |
| | | 34 | 7 | | 30 | 36 | 27 | 7 | | | | | | | | | | ⊙'s U. L. | |
| | | 45 | 27 | | 41 | 57 | 38 | 28 | | | | 59 | 20 | | | | | ⊙'s L. L. | |
| | | 49 | 37 | | 46 | 7 | 42 | 38 | | | | | | | | | | ⊙'s U. L. | |
| ☿ | 21 | 26 | 8½ | 19 | 29 | 38 | 33 | 6 | | | | 59 | 20 | 29,74 | 40 | 41 | W. | ⊙'s U. L. | eaſterly |
| | | 30 | 10 | | 33 | 50 | 37 | 19 | | | | | | | | | | ⊙'s L. L. | |
| | | 41 | 43½ | | 45 | 14 | 48 | 43 | | | | 57 | 20 | | | | | ⊙'s U. L. | |
| | | 45 | 55 | | 49 | 26 | 52 | 55½ | | | | | | | | | | ⊙'s L. L. | |
| ♃ | 22 | 30 | 45 | 4 | 27 | 14 | 23 | 43 | 0 | 8 | 19¾ | 57 | 20 | 29,80 | 60 | 60 | W. | ⊙'s L. L. | weſterly |
| | | 34 | 56 | | 31 | 26 | 27 | 55 | | | | | | | | | | ⊙'s U. L. | |
| | | 46 | 18 | | 42 | 48 | 39 | 18 | | | | 59 | 20 | | | | | ⊙'s L. L. | |
| | | 50 | 27 | | 46 | 58 | 43 | 30 | | | | | | | | | | ⊙'s U. L. | |

| 1769 | Equal altitudes. Times by the clock. | | | | Zenith diſtance | Barometers | Thermometers | | Phænomena and Circumſtances. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| June | Lower Wire ′ ″ | Middle Wire h ′ ″ | Upper Wire ′ ″ | Paſſed the Meridian h ′ ″ | ° ″ | Inches | A | B | Obſerver | | |
| ♃ 22 | 11 18 | 19 14 47 | | | 61 20 | 29,68 | 46 | 49 | W. | ⊙'s U. L. | eaſterly |
| | 15 27½ | 18 57 | 22 24½ | | | | | | | ⊙'s L. L. | |
| ♀ 23 | 2 6 | 4 58 38 | 55 11 | 0 8 48,2 | 61 20 | 29,58 | 61 | 62 | W. | ⊙'s L. L. | weſterly |
| | 6 15 | 5 2 46 | 59 19 | | | | | | | ⊙'s U. L. | |
| | 55 51 | 19 59 23 | | | 55 40 | 29,51 | 48 | 48 | W. | ⊙'s U. L. | eaſterly |
| | 0 5 | 20 | 7 9: | | | | | | | ⊙'s L. L. | |
| ♄ 24 | 18 18 | 4 14 45 | 11 13 | 0 9 12,8 | 55 40 | 29,60 | 57 | 56 | W. | ⊙'s L. L. | weſterly |
| | 22 32 | 18 59 | 15 27 | | | | | | | ⊙'s U. L. | |
| ♂ 27 | 3 49½ | 20 7 20:: | 10 56: | | 55 0 | 29,69 | 50 | 59 | D. | ⊙'s U. L. | eaſterly |
| | 8 1 | 11 34 | 15 9 | | | | | | | ⊙'s L. L. | |
| ☿ 28 | 13 49 | 4 10 14 | 6 41½ | 0 10 58,6 | 55 0 | 29,80 | 66 | 65 | D. | ⊙'s L. L. | weſterly |
| | 18 0½ | 14 29 | 10 56: | | | | | | | ⊙'s U. L. | |
| ☉ July 2 | 23 59 | 19 27 28½ | 30 56 | | 60 40 | 29,57 | 52 | 56 | W. | ⊙'s U. L. | eaſterly |
| | 28 8 | 31 38 | 35 5 | | | | | | | ⊙'s L. L. | |
| ☽ 3 | 57 55 | 4 54 26 | 50 58 | 0 13 8,0 | 60 40 | 29,49 | 70 | 79 | W. | ⊙'s L. L. | weſterly |
| | 2 4 | 58 34 | | | | | | | | ⊙'s U. L. | |
| ♃ 6 | 28 8½ | 19 31 39 | 35 8 | | 60 40 | 30,08 | 46 | 50 | W. | ⊙'s U. L. | eaſterly |
| | 32 18 | 35 48½ | 39 17 | | | | | | | ⊙'s L. L. | |
| | 43 40 | 47 10½ | 50 39½ | | 58 40 | | | | | ⊙'s U. L. | |
| | 47 50½ | 51 21 | 54 50: | | | | | | | ⊙'s L. L. | |
| ♀ 7 | 41 29 | 4 37 58 | 34 28 | 0 14 48,1 | 58 40 | 30,16 | 56 | 54 | W. | ⊙'s L. L. | weſterly |
| | 45 39 | 42 9 | 38 39 | | | | | | | ⊙'s U. L. | |
| | 57 3 | | 50 5 | | 60 40 | | | | | ⊙'s L. L. | |
| | 1 13: | 57 44 | 54 14 | | | | | | | ⊙'s U. L. | |
| ♃ 13 | 49 44 | 19 53 16 | 56 46 | | 59 0 | 29,73 | 48 | 48 | D. | ⊙'s U. L. | eaſterly |
| | 53 54 | 57 26 | 0 57 | | | | | | | ⊙'s L. L. | |
| ♀ 14 | 40 38 | 4 37 8 | 33 37 | 0 17 27,5 | 59 0 | 29,68 | 55 | 57 | D. | ⊙'s L. L. | weſterly |
| | | 41 17 | 37 47 | | | | | | | ⊙'s U. L. | |
| | 56 20½ | 19 59 53 | 3 24 | | 58 20 | 29,60 | 49 | 48 | D. | ⊙'s U. L. | eaſterly |
| | 0 31 | 20 4 4 | 7 35 | | | | | | | ⊙'s L. L. | |
| ♄ 15 | 34 40 | 4 31 8 | 27 36½ | 0 17 46,9 | 58 20 | 29,65 | 55 | 50 | D. | ⊙'s L. L. | weſterly |
| | 38 51 | 35 19½ | 31 49 | | | | | | | ⊙'s U. L. | |
| ♃ 27 | 55 57½ | 19 59 29 | 3 0 | | 61 0 | 29,61 | 51 | 54 | D. | ⊙'s U. L. | eaſterly |
| | 0 7 | 20 3 40½ | 7 12 | | | | | | | ⊙'s L. L. | |
| ♀ 28 | 41 56 | 4 38 24 | 34 53 | 0 21 18,9 | 61 0 | 29,67 | 67 | 70 | D. | ⊙'s L. L. | weſterly |
| | 46 6½ | 42 35 | 39 4 | | | | | | | ⊙'s U. L. | |
| ♂ Aug. 1 | Put the clock back. | | | | | | | | W. | | |
| ♃ 3 | 52 4 | 19 55 40 | 59 15 | | 61 0 | 29,65 | 45 | 50 | W. | ⊙'s U. L. | eaſterly |
| | 56 21½ | 59 58 | 3 34 | | | | | | | ⊙'s L. L. | |
| ♀ 4 | 14 11 | 4 10 34½ | 6 59 | 0 5 35,4 | 61 0 | 29,64 | 60 | 56½ | W. | ⊙'s L. L. | weſterly |
| | 18 29 | 14 53 | 11 18 | | | | | | | ⊙'s U. L. | |
| ☽ 7 | 12 42½ | 19 16 13 | 19 42½ | | 67 0 | 29,50 | 49 | 51 | D. | ⊙'s U. L. | eaſterly |
| | 16 51½ | 20 22½ | | | | | | | | ⊙'s L. L. | |
| ♂ 8 | 54 34 | 4 51 2½ | | 0 6 5¾ | 67 0 | 29,44 | 56 | 61 | D. | ⊙'s L. L. | weſterly |
| | 58 44 | 55 14 | 51 44 | | | | | | | ⊙'s U. L. | |
| ♂ 15 | 34 37½ | 19 38 12 | 41 44½ | | 66 20 | 29,98 | 46 | 49 | W. | ⊙'s U. L. | eaſterly |
| | 38 55 | 42 29 | | | | | | | | ⊙'s L. L. | |

| 1769 | Equal altitudes. Times by the clock. | | | | Zenith diſtance | Baro-meter | Thermo-meters | | Phænomena and Circum-ſtances. | |
|---|---|---|---|---|---|---|---|---|---|---|
| Auguſt. | Lower Wire<br>′ ″ | Middle Wire<br>h ′ ″ | Upper Wire<br>′ ″ | Paſſed the Meridian<br>h ′ ″ | ° ′ | Inches | A | B | Ob-ſerver | |
| ☿ 16 | 33 37 | 4 30 2 | 26 29½ | 0 6 39,9 | 66 20 | 30,01 | 54 | 57 | W. | ☉'s L. L.<br>☉'s U. L. westerly |
| | 37 54 | 34 20 | 30 47 | | | | | | | |
| ♃ 24 | 6 13½ | 20 9 57½ | 13 43 | | 65 0 | 29,54 | 46 | 50 | D. | ☉'s U. L.<br>☉'s L. L. eaſterly |
| | 10 39 | 14 25 | 16 11 | | | | | | | |
| ♀ 25 | 1 39 | | | 0 6 34½ | 65 0 | 29,64 | 58 | 57 | D. | ☉'s L. L.<br>☉'s U. L. weſterly |
| | 6 7½ | 4 2 21½ | | | | | | | | |

| 1768 | Apparent Times. | Zenith diſtances. | | | | Baro-meter. | Thermo-meters. | | Phænomena and Circum-ſtances. | |
|---|---|---|---|---|---|---|---|---|---|---|
| September | h ′ ″ | 90 Arch<br>° ′ ″ | 96 Arch<br>G. S. V. | Subt.<br>″ | 96 Arch reduced | Inches | A | B | Ob-ſerver | |
| ♃ 15 | | 55 52 33 | 59 2 12 | 20 | 55 51 49 | 29,61 | 46 | 42½ | W. | ☉'s U. L. on merid. |
| ♂ 20 | | 58 20 58 | 62 0 30 | 9 | 58 20 32 | 30,06 | 47 | 41 | D. | ☉'s L. L. ditto. |
| ☿ 21 | | 58 12 30 | 62 0 11 | 6 | 58 12 15 | 30,09 | 45½ | 49 | D. | ☉'s U. L. ditto. |
| ♃ 22 | | 59 7 44 | 63 0 9 | 16 | 59 7 26 | 29,93 | 57 | 60 | D. | ☉'s L. L. ditto. |
| ♂ 27 | | 60 32 24 | 64 2 10 | 21 | 60 32 10 | 29,77 | 47 | 48 | W. | ☉'s U. L. ditto. |
| ♃ 29 | | 50 30 36 | 53 3 15 | 6 | 50 29 56 | 29,99 | 52 | 49 | W. | α aquilæ on the merid. |
| | | 9 46 57 | 10 1 24 | 2 | 9 47 2 | 29,97 | 43 | 38½ | W. | α perſei do. pl. qua. E. |
| | 15 40 56 | 35 19 36 | 37 2 22 | 10 | 35 18 53 | 29,78 | 42½ | 38 | W. | ☽'s U. L. on merid. |
| ♀ 30 | | 61 42 40 | 65 3 10 | 25 | 61 42 25 | 29,98 | 47 | 47½ | W. | ☉'s U. L. on meri. |
| | | 62 15 0 | 66 1 19 | 13 | 62 14 42 | | | | | ☉'s L. L. |
| ♄ Oct. 1 | | 62 38 15 | 66 3 9 | 15 | 62 38 23 | 29,79 | 46 | 45½ | W. | ☉'s L. L. on merid. |
| ☉ 2 | | 14 19 21 | 15 1 3 | 16 | 14 18 52 | 29,19 | 46 | 39 | D. | α cygni ditto. |
| ♄ 13 | | 50 30 34 | 53 3 15 | 4 | 50 29 58 | 29,82 | 32 | 28½ | W. | α aquilæ ditto. (v. g.) |
| | | 14 19 25 | 15 1 3 | 0 | 14 19 8 | 29,82 | 32 | 28½ | W. | α cygni ditto. (v. g.) |
| | | 13 2 44 | 13 3 22 | 12:: | 13 2 54 | 29,84 | 28 | 27 | W. | capella do. pl. qu. W. |
| ♀ 14 | | 67 2 54 | 71 2 2 | 2 | 67 2 43 | 29,90 | 37 | 34 | W. | ☉'s U. L. on the merid. |
| | | 67 35 25 | 72 0 12 | 10 | 67 35 6 | | | | | ☉'s L. L. |
| | | 50 30 49 | 53 3 16 | 8 | 50 30 20 | 29,90 | 38 | 32 | W. | α aquilæ ditto. |
| | | 9 45 52 | 10 1 21 | 0 | 9 45 47 | 29,86 | 31 | 28 | W. | α perſei do. pl. qu. W: |
| | | 13 3 12 | 13 3 23 | 25 | 13 3 8 | 29,83 | 31 | 27 | W. | capell. do. do. ver. hazy |
| ☉ 16 | | 68 19 22 | 72 3 16 | 17 | 68 18 56 | 30,20 | 25 | 18½ | D. | ☉'s L. L. on merid. |
| | | 20 12 18 | 21 2 7 | 6 | 20 12 21 | 30,18 | 27 | 21 | D. | α lyræ ditto. |
| | | 50 30 52 | 53 3 16 | 6 | 50 30 22 | 30,18 | 27 | 21 | D. | α aquilæ ditto. |
| | | 14 19 30 | 15 1 4 | 11 | 14 19 23 | 30,17 | 26 | 20½ | D. | α cygni ditto. |
| ☽ 17 | | 68 9 20 | 72 2 25 | 16 | 68 8 51 | 30,22 | 29 | 23½ | D. | ☉'s U. L. ditto. |
| | | 20 12 20 | 21 2 7 | 2 | 20 12 25 | 30,18 | 29 | 26½ | D. | α lyræ ditto. |
| | | 14 19 36 | 15 1 4 | 6 | 14 19 28 | 30,14 | 28 | 23½ | D. | α cygni ditto. |
| | | 9 46 48 | 10 1 23 | 16 | 9 46 24 | 30,05 | 25 | 21 | D. | α perſei do. pl. qu. E. |
| | | 13 3 34 | 13 3 23 | 20 | 13 3 13 | 30,01 | 27 | 24 | D. | capella ditto. ditto. |
| ♀ 28 | | 50 30 24 | 53 3 15 | 14 | 50 29 48 | 29,87 | 19 | 11½ | W. | α aquila on meridian |
| | | 14 18 51 | 15 1 3 | 18 | 14 18 50 | 29,87 | 17½ | 10½ | W. | α cygni ditto. |
| ♄ 29 | | 9 45 54 | 10 1 21 | 6 | 9 45 41 | 30,07 | 14 | 9½ | W. | α per. do. pl. qu. E. haz. |

| 1768 November | Apparent Times h ′ ″ | Zenith diſtances. 90 Arch ° ′ ″ | 96 Arch G. S. V. | ub. ″ | 96 Arch reduced ° ′ ″ | Baro-meter. Inches | Thermo-meters. A | B | Ob-ſerver | Phænomena and Circum-ſtances. |
|---|---|---|---|---|---|---|---|---|---|---|
| ☉ 6 | | 50 29 11 | 53 3 12 | 6 | 50 28 37 | 29,65 | + 6 | —3 | W. | α aquilæ on meridian |
| | | 14 18 40 | 15 1 2 | 3 | 14 18 38 | 29,65 | + 5 | —3½ | W. | α cygni ditto. |
| ☿ 9 | | 50 29 38 | 53 3 14 | 12 | 50 29 23 | 29,89 | 0 | —3½ | W. | α aquilæ ditto. |
| ☿ 16 | | 14 18 48 | 15 1 2 | 0 | 14 18 41 | 29,58 | + 4 | —5 | D. | α cygni ditto. |

*⁎* Many of the preceding obſervations can be of no uſe in determining the latitude of the place; but I thought it might be uſeful to inſert them, as they ſerve to ſhew what a very great alteration happened in the poſition of the line of collimation of the quadrant, about this time. W. W.

| 1768 November | Apparent Times h ′ ″ | Zenith diſtances. 90 Arch ° ′ ″ | 96 Arch G. S. V. | ub. ″ | 96 Arch reduced ° ′ ″ | Baro-meter. Inches | Thermo-meters. A | B | Ob-ſerver | Phænomena and Circum-ſtances. |
|---|---|---|---|---|---|---|---|---|---|---|
| ☿ 16 | | 9 45 40 | 10 1 20 | 15 | 9 45 6 | 29,62 | + 7 | — 2 | D. | α perſ. on m. pla. qu. E. |
| | | 13 2 53 | 13 3 21 | 20 | 13 2 20 | 29,63 | + 5 | — 2 | D. | capella ditto ditto. |
| ♀ 18 | 5 32 43 | 65 0 0 | | | | 29,87 | —6½ | −12½ | D. | ☽'s L. L. eaſt merid. |
| | 37 30 | 64 40 0 | | | | | | | | |
| | 42 31 | 64 20 | | | | | | | | |
| | 47 50 | 64 0 0 | | | | | | | | |
| | 53 11 | 63 40 0 | | | | | | | | |
| | 7 28 28 | 60 11 16 | 64 2 7 | 14 | | 29,87 | — 8 | —13 | D. | ☽'s L. L. on merid. |
| | 36 28 | 60 30 20 | | | | 29,88 | — 8 | —14 | D. | ☽'s L. L. weſt merid. |
| | 41 28 | 60 30 50 | | | | | | | | |
| | 49 8 | 60 33 16 | | | | | | | | |
| | 54 28 | 60 36 48 | | | | | | | | |
| | | 9 46 32 | 10 1 23 | 20 | 9 46 20 | 29,88 | — 2 | −13½ | D. | α perſei } on mer. pl. |
| | | 13 3 32 | 13 3 23 | 24 | 13 3 9 | 29,89 | — 1 | —14 | D. | capella } of qu. W. |
| | | 51 25 44 | 54 3 13 | 0 | 51 25 24 | 29,90 | 0 | —14 | D. | α orionis on merid. |
| ♄ 19 | | 9 46 0 | 10 1 21 | 0 | 9 45 47 | 29,85 | —10 | —15 | D. | α perſei do. pl. qu. E. |
| ☽ 28 | | 9 45 48 | 10 1 20 | 4 | 9 45 17 | 29,35 | — 8 | —18 | D. | α perſei } on merid. pl. |
| | | 13 2 26 | 13 3 20 | 4 | 13 2 10 | 29,37 | —10 | −18½ | D. | capella } of quad. E. |
| ♂ 29 | | 9 47 30 | 10 1 24 | 3 | 9 47 3 | 29,51 | — 5 | — 9 | D. | α perſei } on merid. pl. |
| | | 13 3 28 | 13 3 23 | 3 | 13 3 30 | 29,63 | — 4 | —12 | D. | capella } of quad. W. |
| ♀ Dec. 2 | | 58 11 18 | 62 0 9 | 24 | 58 11 3 | 29,55 | — 5 | —16 | D. | α urſ. maj. on m. bel. p. |
| | | 29 16 20 | 31 0 28 | 12 | 29 15 51 | 29,53 | — 6 | —16 | D. | polaris do. above pole |
| | | 65 2 10 | 69 1 15 | 16 | 65 1 38 | 29,52 | — 6 | —16 | D. | ζ urſ. maj. do. bel. pole |
| ♄ 3 | | 58 11 30 | 62 0 9 | 13 | 58 11 14 | 29,56 | — 1 | — 8 | D. | α urſ. maj. do. do. |
| | | 29 16 17 | 31 0 28 | 12 | 29 15 51 | 29,56 | — 2 | —10 | D. | polaris do. above pole |
| | | 65 2 7 | 69 1 15 | 24 | 65 1 30 | 29,56 | —2½ | −10½ | D. | ζ urſ. maj. do. bel. pole |
| | | 9 46 14 | 10 1 21 | 16 | 9 45 32 | 29,53 | — 3 | —12 | D. | α perſei do. pl. qu. E. |
| ♂ 6 | | 58 11 32 | 62 0 9 | 19 | 58 11 8 | 29,94 | −11½ | —23 | W. | α urſ. maj. do. bel. pole |
| | | 9 47 30 | 10 1 24 | 0 | 9 47 7 | 29,95 | — 9 | −2: | W. | α perſei do. pl. qu. W. |
| ☿ 7 | | 66 11 48 | 70 2 13 | 0 | 66 11 20 | 30,10 | —10 | −21½ | W. | γ urſ. maj. do. bel. pol. |
| ♃ 8 | | 66 11 40 | 70 2 13 | 0 | 66 11 20 | 30,21 | — 3 | −15½ | W. | do. do. do. |
| | | 65 2 41 | 69 1 16 | 4 | 65 2 17 | 30,21 | — 3 | —16 | W. | ζ urſ. maj. do. do. |
| ♄ 10 | | 9 46 0 | 10 1 21 | 12 | 9 45 35 | 29,54 | —10 | —25 | W. | α perſei do. pl. qu. E. |
| ♃ 15 | | 58 11 20 | 62 0 8 | 0 | 58 11 1 | 29,92 | —24 | —25 | D. | α urſ. maj. do. bel. pol. |
| | | 29 15 56 | 31 0 28 | 16 | 29 15 47 | 29,94 | −23½ | —25 | D. | polaris do. above pole |
| | | 65 1 57 | 69 0 14 | 8 | | 29,95 | −23½ | −25½ | D. | ζ urſ. maj. do. bel. pole |
| ☽ 19 | | 66 11 39 | 70 2 13 | 4 | 66 11 12 | 29,89 | —15 | —21 | W. | γ urſ. maj. do. do. |
| | | 29 16 16 | 31 0 28 | 14 | 29 15 49 | 29,89 | —15 | —21 | W. | polaris do. above pole |

| 1769 | Apparent Times | Zenith diſtances. | | | | | | | | | | Barometer | Thermometers | | | Phænomena and Circumſtances. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | | 90 Arch | | | 96 Arch | | | Su. | 96 Arch reduced | | | Inches | A | B | Obſerver | |
| | | ° | ′ | ″ | G. | S. | V. | ″ | ° | ′ | ″ | | | | | |
| ☉ 1 | | 70 | 41 | 4 | 75 | 1 | 19 | 11 | 70 | 40 | 59 | 29,94 | —25 | —29 | W. | η urſ. maj. on mer. bel. the pole |
| | | 33 | 6 | 28 | 35 | 1 | 8 | 0 | 33 | 6 | 20 | 30,16 | —25 | —27 | W. | polaris, ditto, ditto |
| ☽ 2 | | 70 | 41 | 9 | 75 | 1 | 19 | 20 | 70 | 40 | 50 | 30,19 | —28 | —34 | W. | η urſ. maj. ditto, ditto |
| ♂ 17 | | 42 | 45 | 20 | 45 | 2 | 13 | 0 | 42 | 45 | 5 | 29,46 | —34 | —39 | W. | aldebaran on the meridian |
| ☿ 18 | | 29 | 16 | 16 | 31 | 0 | 28 | 12 | 29 | 15 | 49 | 29,45 | —34 | —38 | W. | polaris on merid. above the pole |
| | | 65 | 2 | 20 | 69 | 1 | 15 | 20 | 65 | 1 | 34 | 29,45 | —34 | —39 | W. | ζ urſ. maj. ditto below the pole |
| | | 70 | 41 | 30 | 75 | 1 | 19 | 14 | 70 | 40 | 56 | 29,44 | —34 | —39 | W. | η urſ. maj. ditto, ditto |
| | | 42 | 45 | 20 | 45 | 2 | 14 | 20 | 42 | 45 | 12 | 29,36 | —34 | —36 | W. | aldebaran on the meridian |
| ♀ 20 | | 65 | 2 | 27 | 69 | 1 | 15 | 14 | 65 | 1 | 40 | 29,45 | —27 | —30 | W. | ζ urſ. maj. on merid. bel. the pole |
| | | 2 | 39 | 44 | 2 | 3 | 12 | 12 | 2 | 39 | 46 | 29,55 | —33 | —36 | W. | ditto, ditto above the pole |
| | | 8 | 20 | 20 | 8 | 3 | 19 | 16 | 8 | 20 | 16 | 29,55 | —33 | —36 | W. | η ditto, ditto, ditto |
| ♄ 21 | | 70 | 41 | 28 | 75 | 1 | 19 | 15 | 70 | 40 | 55 | 29,74 | —31 | —36 | W. | ditto, ditto below the pole |
| ♄ 28 | | 75 | 24 | 10 | 80 | 1 | 22 | 2 | 75 | 23 | 42 | 30,13 | —37 | —40 | W. | capella, ditto, ditto |
| ☉ 29 | | 70 | 41 | 38 | 75 | 1 | 19 | 8 | 70 | 41 | 2 | 30,08 | —30 | —34 | W. | η urſ. maj. ditto, ditto |
| | | 9 | 46 | 7 | 10 | 1 | 21 | 3 | 9 | 45 | 44 | 30,07 | —30 | —35 | W. | α perſei, ditto above the pole |
| | | 13 | 3 | 7 | 13 | 3 | 22 | 0 | 13 | 3 | 6 | 30,05 | —31 | —36 | W. | capella, ditto, ditto |
| | | 2 | 39 | 52 | 2 | 3 | 12 | 14 | 2 | 39 | 44 | 30,00 | —35 | —40 | W. | ζ urſ. maj. ditto, ditto |
| | | 8 | 19 | 4 | 8 | 3 | 16 | 10 | 8 | 19 | 3 | 30,00 | —35 | —40 | W. | η urſ. maj. ditto, ditto |
| | | 72 | 7 | 52 | 76 | 3 | 24 | 24 | 72 | 7 | 30 | 29,99 | —36 | —41 | W. | α perſei, ditto below the pole |
| | | 75 | 23 | 56 | 80 | 1 | 22 | 16 | 75 | 23 | 28 | 29,98 | —36 | —41 | W. | capella, ditto |
| ☽ 30 | | 70 | 41 | 28 | 75 | 1 | 19 | 15 | 70 | 40 | 55 | 29,97 | —28 | —31 | W. | η urſ. maj. ditto, ditto (hazy) |
| | | 13 | 3 | 8 | 13 | 3 | 22 | 10 | 13 | 2 | 56 | 29,96 | —29 | —30 | W. | capella, ditto above the pole |
| ♂ 31 | | 9 | 46 | 16 | 10 | 1 | 22 | 20 | 9 | 45 | 54 | 30,17 | —24 | —31 | W. | α perſei, ditto, ditto |
| | | 13 | 3 | 10 | 13 | 3 | 22 | 12 | 13 | 2 | 54 | 30,16 | —26 | —31 | W. | capella, ditto, ditto |
| ☉ Feb. 5 | | 13 | 3 | 16 | 13 | 3 | 23 | 20 | 13 | 3 | 13 | 29,79 | —16 | —20 | D. | capella, ditto, ditto |
| | | 51 | 26 | 36 | 54 | 3 | 16 | 24 | 51 | 26 | 19 | 29,79 | —16 | —20 | D. | α orionis on the meridian |
| ☿ 8 | | 42 | 45 | 30 | 45 | 2 | 13 | 12 | 42 | 44 | 53 | 30,03 | —13 | —12 | D. | aldebaran, ditto |
| | | 13 | 3 | 30 | 13 | 3 | 23 | 10 | 13 | 3 | 23 | 30,03 | —13 | —13 | D. | capella, ditto above the pole |
| | | 51 | 26 | 32 | 54 | 3 | 16 | 24 | 51 | 26 | 19 | 30,02 | —13 | —13 | D. | α orionis on the meridian |
| | | 33 | 7 | 16 | 35 | 1 | 10 | 20 | 33 | 6 | 52 | 29,83 | —13 | — 9 | D. | polaris, ditto below |
| ♃ 9 | | 42 | 45 | 38 | 45 | 2 | 13 | 10 | 42 | 44 | 55 | 29,60 | + 7 | +12 | D. | aldebaran on the meridian |
| | | 13 | 3 | 28 | 13 | 3 | 23 | 24 | 13 | 3 | 19 | 29,59 | + 9 | +12 | D. | capella, ditto above the pole |
| ♀ 10 | | 33 | 7 | 36 | 35 | 1 | 10 | 10 | 33 | 7 | 2 | 30,32 | —16 | —21 | D. | polaris below |
| | | 75 | 24 | 17 | 80 | 1 | 23 | 20 | 75 | 23 | 50 | 30,33 | —21 | —26 | D. | capella below the pole |
| ☽ 13 | | 75 | 24 | 22 | 80 | 1 | 23 | 18 | 75 | 23 | 52 | 29,93 | —26 | —27 | W. | ditto, ditto |
| ♂ 14 | | 9 | 46 | 26 | 10 | 1 | 22 | 10 | 9 | 46 | 4 | 29,98 | —17 | —21 | W. | α perſei on merid. above the pole |
| | | 13 | 3 | 28 | 13 | 3 | 22 | 6 | 13 | 3 | 0 | 29,96 | —18 | —21 | W. | capella, ditto, ditto |
| ☿ 22 | | 42 | 45 | 52 | 45 | 2 | 14 | 0 | 42 | 45 | 32 | 29,74 | —19 | —29 | D. | aldebaran on the meridian |
| | | 51 | 26 | 20 | 54 | 3 | 15 | 22 | 51 | 25 | 55 | 29,72 | —21 | —30 | D. | α orionis, ditto |
| ♀ 24 | | 13 | 3 | 28 | 13 | 3 | 23 | 24 | 13 | 3 | 19 | 29,83 | —20 | —26 | D. | capella, ditto |
| | | 51 | 26 | 24 | 54 | 3 | 15 | 20 | 51 | 25 | 57 | 29,84 | —20 | —28 | D. | α orionis, ditto |
| | | 33 | 7 | 17 | 35 | 1 | 10 | 16 | 33 | 6 | 56 | 29,93 | —29 | —37 | D. | polaris, ditto below the pole |
| ♄ 25 | | 51 | 26 | 4 | 54 | 3 | 14 | 14 | 51 | 25 | 36 | 29,90 | —25 | —31 | D. | α orionis on the meridian |
| ♃ Mar. 2 | | 42 | 45 | 24 | 45 | 2 | 13 | 3 | 42 | 45 | 2 | 30,02 | —28 | —31 | W. | aldebaran on the meridian |
| ♀ 3 | | 42 | 45 | 22 | 45 | 2 | 13 | 0 | 42 | 45 | 5 | 29,86 | —18 | —15 | W. | ditto, ditto (v. g.) |
| ☽ 6 | | 33 | 7 | 20 | 35 | 1 | 10 | 22 | 33 | 6 | 50 | 29,70 | —31 | —36 | D. | polaris on the meridian below |
| | | 75 | 24 | 34 | 80 | 1 | 24 | 22 | 75 | 24 | 14 | 29,69 | —36 | —41 | D. | capella, ditto, ditto |

| 1769 | | Appar. Time | | | Zenith diſtances. | | | | | | | | | | Baro-meter | Thermo-meters | | | Phænomena and Circumſtances. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 50 Arch | | | 96 Arch | | | Subt. | 96 Arch reduced | | | Inches | A | B | Ob-ſerver | |
| May | | h | ′ | ″ | ° | ′ | ″ | G. | S. | V. | ″ | ° | ′ | ″ | | | | | |
| ♀ | 12 | 5 | 57 | 22 | 50 | 57 | 0 | | | | | | | | 30,14 | +27 | +24 | W. | ☽'s U. L. eaſt of the merid. |
| | | 6 | 0 | 31 | | 54 | 0 | | | | | | | | | | | | |
| | | | 4 | 10 | | 51 | 0 | | | | | | | | | | | | |
| | | | 6 | 59 | | 49 | 0 | | | | | | | | | | | | |
| | | | 21 | 53 | 50 | 44 | 32 | 54 | 0 | 15 | 4 | 50 | 44 | 1½ | 30,14 | +26 | 24 | W. | ☽'s U. L. on the merid. |
| | | | 36 | 51 | | 49 | 0 | | | | | | | | 30,14 | 24 | 22 | W. | ☽'s U. L. weſt of the merid. |
| | | | 39 | 15 | | 51 | 0 | | | | | | | | | | | | |
| | | | 42 | 58 | | 54 | 0 | | | | | | | | | | | | |
| | | | 46 | 12 | | 57 | 0 | | | | | | | | | | | | |
| | | | 51 | 54 | 51 | 3 | 0 | | | | | | | | | | | | |
| | | | | | 38 | 25 | 32 | 40 | 3 | 29 | 0 | 38 | 24 | 56 | 30,14 | +21 | +15 | W. | arcturus on the meridian |
| ☽ | 22 | | | | 37 | 59 | 44 | 40 | 2 | 3 | 9 | 37 | 59 | 18 | 29,74 | +41 | +42 | W. | ⊙'s U. L. ditto |
| ☿ | 24 | | | | 38 | 9 | 29 | 40 | 2 | 26 | 20 | 38 | 9 | 13 | 29,87 | +36 | +43 | W. | ⊙'s L. L. ditto (hazy) |
| ☽ une | 5 | | | | 38 | 25 | 24 | 40 | 3 | 29 | 6 | 38 | 24 | 50 | 29,44 | 48 | 44 | W. | arcturus on the meridian |
| ⊙ | 11 | | | | 64 | 29 | 0 | 68 | 3 | 4 | 18 | 64 | 28 | 39 | 29,68 | 54 | 58 | D. | ☽'s U. L. ditto |
| | | | | | 61 | 51 | 50 | 65 | 3 | 29 | 0 | 61 | 51 | 11 | 29,68 | 48 | 44 | D. | δ ophiuchi on meridian |
| | | | | | 62 | 53 | 17 | 67 | 0 | 10 | 16 | 62 | 52 | 53 | | | | | ε |
| ☽ | 12 | 6 | 9 | 0 | 70 | 20 | 0 | | | | | | | | 29,78 | 44 | 40 | D. | ☽'s U. L. eaſt of the merid. |
| | | | 14 | 14 | | 10 | 0 | | | | | | | | | | | D. | |
| | | | 19 | 51 | | 0 | 0 | | | | | | | | | | | D. | |
| | | | 26 | 3 | 69 | 50 | 0 | | | | | | | | | | | D. | |
| | | | 33 | 15 | 69 | 40 | 0 | | | | | | | | 29,78 | 42 | 40 | D. | |
| | | | 11 | 10 | 69 | 17 | 5 | 73 | 3 | 19 | 13 | 69 | 16 | 34 | 29,79 | 42 | 41 | D. | ☽'s U. L. on the meridian |
| | | | 46 | 51 | 69 | 40 | 0 | | | | | | | | 29,79 | 42 | 41 | D. | ☽'s U. L. weſt of the merid. |
| | | | 54 | 16 | 69 | 50 | 0 | | | | | | | | | | | D. | |
| | | 3 | 0 | 44 | 70 | 0 | 0 | | | | | | | | | | | D. | |
| ♂ | 20 | | | | 35 | 3 | 31 | 37 | 1 | 19 | 22 | 35 | 3 | 18 | 29,76 | 57 | 64 | W. | ⊙'s U. L. on the merid. |
| | | | | | 35 | 35 | 6 | 37 | 3 | 26 | 12 | 35 | 34 | 40 | | | | | ⊙'s L. L. |
| ♃ | 22 | | | | 35 | 36 | 12 | 37 | 3 | 28 | 6 | 35 | 35 | 39 | 29,79 | 54 | 56 | W. | ⊙'s L. L. on the merid. |
| | | | | | 35 | 4 | 20 | 37 | 1 | 20 | 16 | 35 | 3 | 50 | | | | | ⊙'s. U. L. |
| ♄ | 24 | | | | 6 | 19 | 22 | 6 | 2 | 31 | 20 | 6 | 18 | 53 | 29,57 | 52 | 49 | W. | β draconis on the meridian, |
| | | | | | 7 | 16 | 20 | 7 | 3 | 1 | 18 | 7 | 16 | 5 | 29,57 | 51 | 48 | W. | γ plane of the quadrant eaſt |
| ⊙ July | 2 | | | | 7 | 15 | 36 | 7 | 3 | 0 | 13 | 7 | 15 | 43 | 29,68 | 56 | 52 | W. | γ drac. do. pl. of quadr. weſt |
| ♀ | 7 | | | | 6 | 18 | 56 | 6 | 2 | 30 | 11 : : | 6 | 18 | 38 | 30,14 | 50 | 44 | W. | β draconis ditto, plane of the |
| | | | | | 7 | 16 | 22 | 7 | 3 | 1 | 4 | 7 | 16 | 19 | 30,13 | 49 | 43 | W. | γ quadrant eaſt (foggy) |
| ♂ | 18 | | | | 7 | 15 | 43 | 7 | 3 | 0 | 14 | 7 | 15 | 42 | 29,44 | 57 | 53 | W. | γ drac. do. pl. of quadr. weſt |
| ♃ | 20 | | | | 6 | 18 | 46 | 6 | 2 | 30 | 18 | 6 | 18 | 31 | 29,64 | 54 | 50 | W. | β draconis, plane of the |
| | | | | | 7 | 15 | 36 | 7 | 3 | 0 | 18 | 7 | 15 | 38 | 29,64 | 53 | 48 | W. | γ quadrant weſt |
| ♀ | 21 | | | | 6 | 19 | 27 | 6 | 3 | 0 | 25 | 6 | 19 | 16 | 29,66 | 56 | 52 | W. | β draconis on the meridian, |
| | | | | | 7 | 16 | 18 | 7 | 3 | 1 | 10 | 7 | 16 | 13 | 29,66 | 56 | 51 | W. | γ plane of the quad. eaſt |
| ♄ | 22 | | | | 6 | 18 | 30 | 6 | 2 | 29 | 2 | 6 | 18 | 24 | 29,63 | 54 | 50 | W. | β draconis on the meridian, |
| | | | | | 7 | 15 | 40 | 7 | 3 | 0 | 12 | 7 | 15 | 44 | 29,63 | 54 | 49 | W. | γ plane of the quad. weſt |
| ♄ | 29 | | | | 7 | 16 | 23 | 7 | 3 | 1 | 8 | 7 | 16 | 15 | 29,69 | 62 | 58 | D. | γ drac. do. pl. of quadr. eaſt |
| ⊙ | 30 | | | | 7 | 15 | 30 | 7 | 3 | 0 | 20 | 7 | 15 | 36 | 29,67 | | | W. | γ drac. on mer. pl. of quad. weſt |
| ☿ Aug. | 2 | | | | 40 | 55 | 30 | 43 | 2 | 19 | 8 | 40 | 55 | 5½ | 29,73 | 57 | 59 | W. | ⊙'s U. L. on merid. clouds |
| | | | | | 41 | 27 | 28 : | 44 | 0 | 28 | 10 | 41 | 27 | 8 | | | | | ⊙'s L. L. |
| ♀ | 4 | | | | 7 | 16 | 20 | 7 | 3 | 1 | 16 | 7 | 16 | 7 | 29,62 | 55 | 47 | W. | γ drac. do. pl. of quadr. eaſt |

| 1769 | | Apparent Times | Zenith diſtances. | | | | Baro-meter | Thermo-meters | | Phænomena and Circumſtances. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Auguſt | | | 90 Arch | 96 Arch | Su. | 96 Arch reduced | Inches | A | B | Ob-ſerver | |
| | | h ′ ″ | ° ′ ″ | G. S. V. | ″ | ° ′ ″ | | | | | |
| ♄ | 5 | | 42 15 36 | 45 0 9 | 0 | 42 15 12 | 29,67 | 55 | 54 | W. | ☉'s L. L. on the merid. |
| | | | 41 43 46 | 44 2 2 | 23 | 41 43 37 | | | | W. | ☉'s U. L. |
| | | 2 37 1 | 65 14 21 | 69 2 11 | 21 | 65 13 52 | 29,70 | 59 | 57 | W. | ☽'s U. L. |
| | | 42 6 | 65 11 53 | 69 2 6 | 25 | 11 36 | | | | | |
| | | 46 29 | 65 10 50 | 2 3 | 18 | 10 24 | | | | | |
| | | 54 17 | 65 10 0 | 2 1 | 10 | 9 39 | | | | | |
| | | 58 59 | 65 10 34 | 2 2 | 18 | 9 57 | | | | | |
| | | 3 4 46 | 65 12 20 | 2 6 | 6 | 11 55 | | | | | |
| | | 9 17 | 65 14 22 | 2 10 | 0 | 65 13 46 | | | | | |
| | | | 65 21 4: | 69 2 25 | 0 | 65 20 22 | 29,79 | 51 | 47 | W. | β aquarii on the meridian |
| | | | 60 12 36 | 64 0 28 | 18 | 60 12 0 | 29,80 | 51 | 47 | W. | α |
| ♄ | 12 | | 44 14 50 | 47 0 25 | 15 | 44 14 29 | 29,63 | 56 | 61 | D. | ☉'s L. L. on the merid. |
| ☉ | 20 | 14 20 28 | 48 40 0 | | | | 29,81 | 44 | 44 | D. | ☽'s L. L. eaſt of merid. |
| | | 23 14 | 48 35 0 | | | | | | | | |
| | | 28 43 | 48 31 0 | | | | | | | | |
| | | 20 33: | 48 27 0 | | | | | | | | |
| | | 31 48:: | 48 23 0 | | | | | | | | |
| | | | 48 5 42 | 51 1 6 | 18 | 48 5 9 | 29,81 | 45 | 44 | D. | Ditto on the meridian. |
| | | 15 29 23 | 48 23 0 | | | | 29,81 | 45 | 43 | D. | Ditto weſt of the merid. |
| | | 32 26 | 48 27 0 | | | | | | | | |
| | | 35 19 | 48 31 0 | | | | | | | | |
| | | 37 53 | 48 35 0 | | | | | | | | |
| | | 40 58 | 48 40 0 | | | | | | | | |
| ♂ | 22 | | 47 30 19 | 50 2 20 | 0 | 47 29 25 | 29,48 | 54 | 59 | | ☉'s L. L. on the merid. |

| 1768 | Time per clock | Apparent Time | Occultations of Fixed Stars by the Moon, &c. Obſerved. |
|---|---|---|---|
| September | h ′ ″ | h ′ ″ | |
| ☿ 21 | 7 2 9 | 7 6 52 | ρ ♑ immerged behind the ☽'s dark limb J. D. |
| | 7 2 16 | 7 6 59 | W. W. |
| 1769 | | | |
| ☿ Mar. 15 | 11 21 6 | 11 24 34 | ζ ♊ immerged behind the ☽'s dark limb (very exact) W. W. |
| | 12 8 44 | 12 12 11 | Ditto emerged (perhaps about 5″ ſooner) J. D. |
| ☿ 29 | 16 54 0 | 16 46 22:: | $2^{d}$ ν ♐ immerged behind the bright limb of the moon W. W. |
| | 53 58 | 16 46 19 | J. D. |
| ☉ Apr. 9 | 10 29 21 | 10 20 27½ | τ ♉ immerged behind the Moon's dark limb J. D. |
| ☽ 10 | 15 38 44 | 15 29 39 | ♃'s 1ſt ſatellite immerged cloſe to the body of the planet W. W. |
| | 39 14 | 15 30 9 | J. D. |
| ☉ Aug. 11 | 9 16 47 | 9 10 22½ | The ✱ N° 43 of Ophiuchi in Mr. Flamſtead's catalogue immerged behind the dark limb of the ☽ (very faint) J. D. |
| | 10 14 56 | 10 8 31 | B in the ſame conſtellation and catalogue immerged J. D. |
| | 10 14 54 | 10 8 29 | Ditto per W. W. N. B. The immerſion happened towards the northern limb of the ☽ ſo very near the interſection of light and darkneſs, as to render the obſervation doubtful to 2 or 3″. |

The

The following Table for the MICROMETER I received from the late Mr. Short, along with the Inſtrument.

Wm. Wales.

| Inches | ′ | ″ | Decim. of an in. | ′ | ″ | Vernr | ″ | Vernr | ″ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6 | 50,2 | 0,05 | 0 | 20,5 | 1 | 0,8 | 20 | 16,4 |
| 2 | 13 | 40,4 | 10 | 0 | 41,0 | 2 | 1,6 | 21 | 17,2 |
| 3 | 20 | 30,6 | 15 | 1 | 1,5 | 3 | 2,5 | 22 | 18,1 |
| 4 | 27 | 20,9 | 20 | 1 | 22,0 | 4 | 3,3 | 23 | 18,9 |
| 5 | 34 | 11,1 | 25 | 1 | 42,6 | 5 | 4,1 | 24 | 19,7 |
| | | | 30 | 2 | 3,1 | 6 | 4,9 | | |
| | | | 35 | 2 | 23,6 | 7 | 5,7 | | |
| | | | 40 | 2 | 44,1 | 8 | 6,6 | | |
| | | | 45 | 3 | 4,6 | 9 | 7,4 | | |
| | | | 50 | 3 | 25,1 | 10 | 8,2 | | |
| | | | 55 | 3 | 45,6 | 11 | 9,0 | | |
| | | | 60 | 4 | 6,1 | 12 | 9,8 | | |
| | | | 65 | 4 | 26,6 | 13 | 10,7 | | |
| | | | 70 | 4 | 47,2 | 14 | 11,5 | | |
| | | | 75 | 5 | 7,7 | 15 | 12,3 | | |
| | | | 80 | 5 | 28,2 | 16 | 13,1 | | |
| | | | 85 | 5 | 48,7 | 17 | 13,9 | | |
| | | | 90 | 6 | 9,2 | 18 | 14,8 | | |
| | | | 95 | 6 | 29,7 | 19 | 15,6 | | |

| 1769 | Times per clock | | | Apparent Times | | | Parts of the micrometer | | Micrometer reduced | | Obſervations on the Tranſit of Venus. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| June | h | ′ | ″ | h | ′ | ″ | Inches | Vernier | ′ | ″ | | |
| ♄ 3 | 0 | 56 | 49 | 0 | 57 | 0,6 | | | | | Exterior contact at the ingreſs | J. D. |
| | | 56 | 56 | 0 | 57 | 7,6 | | | | | Ditto | W. W. |
| | 1 | 15 | 10 | 1 | 15 | 21,3 | | | | | Interior ditto | W. W. |
| | | 15 | 14 | 1 | 15 | 25,3 | | | | | Ditto | J. D. |
| | | 57 | 21 | | 57 | 31½ | 0,40 | 18 | 2 | 57,5 | Diſt. of ♀'s fartheſt limb from the ⊙'s neareſt | J. D. |
| | | 58 | 36 | | 58 | 46½ | 0,10 | 22 | 0 | 57,5 | ♀'s diameter off the ſcale | |
| | 2 | 1 | 16 | 2 | 1 | 26½ | 4,60 | 4½ | 31 | 32,3 | ⊙'s diameter | |
| | | 2 | | | | | | | | | Cloudy a ſhort time | |
| | | 4 | 11 | | 4 | 21½ | 4,25 | 10 | 29 | 13,3 | Diſt. of Venus's fartheſt limb from the ⊙'s fartheſt | |
| | | 5 | 58 | | 6 | 8½ | 0,10 | 19 | 0 | 58,2 | ♀'s diameter on the ſcale | |
| | | 7 | 33 | | 7 | 43½ | 0,50 | 0½ | 3 | 27,1 | Diſt. of ♀'s fartheſt limb from the ⊙'s neareſt | |
| | | 9 | 9 | | 9 | 19½ | 0,10 | 19 | 0 | 58,2 | ♀'s diameter on the ſcale | |
| | | 10 | 26 | | 10 | 36¼ | 0,15 | 0 | 0 | 59,9 | Ditto off the ſcale | |
| | | 12 | 0 | | | | | | | | Cloudy | |

1769

| 1769 | Times per clock | | | Apparent times | | | Parts of the micrometer | | Micrometer reduced | | Obſervations on the Tranſit of Venus. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| June | h | ′ | ″ | h | ′ | ″ | Inches | Vernier | ′ | ″ | | |
| ♄ 3 | 2 | 39 | 0 | 2 | 39 | 10 | 4,60 | 1½ | 31 | 29,8 | ⊙'s horizontal diameter | W. W. |
| | | | | | | | 4,60 | 1 | 31 | 29,4 | | |
| | | 44 | 43 | | 44 | 52¾ | 0,70 | 7½ | 4 | 54,9 | Diſt. of ♀'s fartheſt limb from the ⊙'s neareſt | |
| | | 51 | 40 | | 51 | 49¾ | 0,10 | 20½ | 0 | 59,4 | ♀'s diameter on the ſcale of the micrometer | |
| | | 53 | 26 | | 53 | 35½ | 0,15 | 2 | 1 | 1,5 | Ditto off | |
| | 3 | 4 | 58 | 3 | 5 | 7½ | 0,80 | 4 | 5 | 33,1 | Diſt. of ♀'s fartheſt limb from the ⊙'s neareſt | |
| | | 6 | 13 | | 6 | 22½ | 0,10 | 21 | 0 | 59,8 | ♀'s diameter on the ſcale | |
| | | | | | | | | | | | Cloudy | |
| | | 17 | 47 | | 17 | 56¼ | 4,60 | 4 | 31 | 31,9 | ⊙'s inclined diameter | |
| | | 19 | 40 | | 19 | 49¼ | 0,85 | 6: | 5 | 55,2 | Diſt. of ♀'s fartheſt limb from the ⊙'s neareſt | |
| | | 22 | 20 | | 22 | 29¼ | 0,85 | 14: | 6 | 1,8 | Ditto | |
| | | 23 | 38 | | 23 | 47 | 0,10 | 21 | 0 | 59,8 | ♀'s diameter on the ſcale | |
| | | 24 | 35 | | 24 | 44 | 0,10 | 23½ | 0 | 58,7 | Ditto off | |
| | | 42 | 47 | | 42 | 55¾ | 0,10 | 24 | 0 | 59,1 | Ditto ditto | |
| | | | | | | | | | | | N. B. Several of the above obſervations are a little uncertain, being taken in great haſte, in the intervals between flying clouds. W. W. | |
| | | 46 | 40 | | 46 | 48¾ | 0,90 | 10½ | 6 | 19,4 | Diſt. of ♀'s fartheſt limb from the ⊙'s neareſt | J. D. |
| | | 48 | 0 | | | | | | | | A ſmall cloud | |
| | | 48 | 49 | | 48 | 57¾ | 0,90 | 11 | 6 | 19,8 | Diſt. of ♀'s fartheſt limb from the Sun's neareſt | |
| | | 51 | 33 | | 51 | 41¼ | 0,90 | 12 | 6 | 20,6 | Ditto | |
| | | 55 | 24 | | 55 | 32½ | 0,90 | 12 | 6 | 20,6 | Ditto | |
| | | 56 | 19 | | 56 | 27½ | 0,90 | 12½ | 6 | 21,1 | Ditto | |
| | | 59 | 2 | | 59 | 10½ | 0,90 | 12: | 6 | 20,6 | Ditto | W. W. |
| | 4 | 0 | 50 | 4 | 0 | 58½ | 0,90 | 11½ | 6 | 20,2 | Ditto | |
| | | 2 | 51 | | 2 | 59½ | 0,90 | 11½ | 6 | 20,2 | Ditto | |
| | | 5 | 23 | | 5 | 31½ | 0,90 | 12½ | 6 | 21,1 | Ditto | |
| | | 7 | 12 | | 7 | 20½ | 0,90 | 12½ | 6 | 21,1 | Ditto | |
| | | 11 | 5 | | 11 | 13¼ | 0,90 | 12 | 6 | 20,7 | Ditto | |
| | | 14 | 37 | | 14 | 45¼ | 0,90 | 12 | 6 | 20,7 | Ditto | |
| | | 17 | 50 | | 17 | 58¼ | 0,90 | 11 | 6 | 19,8 | Ditto | |
| | | 19 | 50 | | 19 | 58¼ | 0,10 | 22 | 1 | 0,7 | ♀'s diameter on the ſcale | |
| | | 21 | 30 | | 21 | 38¼ | 0,10 | 24 | 0 | 59,1 | Ditto off | |
| | | 23 | 27 | | 23 | 35 | 4,60 | 0½ | 31 | 29,0 | ⊙'s inclined diameters | |
| | | 25 | 42 | | 25 | 50 | 4,60 | 1½ | 31 | 29,8 | | |
| | | 27 | 12 | | 27 | 20 | 4,60 | 0½ | 31 | 29,0 | | |
| | | 28 | 42 | | 28 | 50 | 4,60 | 2 | 31 | 30,2 | | |
| | | 30 | 56 | | 31 | 4 | 0,90 | 8 | | | Diſt. of ♀'s fartheſt limb from the Sun's neareſt | |
| | | 35 | 39 | | 35 | 47 | 0,90 | 5 | | | Ditto | |
| | | 44 | 25 | | 44 | 32¾ | 0,85 | 19 | | | Ditto | |
| | | 46 | 14 | | 46 | 21¾ | 0,85 | 17 | | | Ditto | |
| | | 50 | 16 | | 50 | 23¾ | 0,85 | 8 | | | Ditto | |
| | | 57 | 20 | | 57 | 27½ | 0,80 | 20 | | | Ditto | |
| | 5 | 32 | 55 | 5 | 32 | 2 | 0,70 | 3 | 4 | 46,4 | Ditto | J. D. |
| | | 34 | 52 | | 34 | 59 | 0,65 | 23½ | 4 | 42,6 | Ditto | |
| | | 41¾ | | | 41 | 51¾ | 0,15 | 2 | 0 | 59,8 | ♀'s diameter on the ſcale | |
| | | 42½ | | | 42 | 36¾ | 0,10 | 17 | 0 | 58,2 | Ditto off | |

| 1769 | Times per clock | | | Apparent times | | | Parts of the micrometer | | Micrometer reduced | | Obſervations on the Tranſit of Venus continued. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| June | h | ' | " | h | ' | " | Inches | Vernier | ' | " | | |
| ♄ 3 | 5 | 43 | 37 | 5 | 43 | 43¾ | 0,15 | 2 | 0 | 59,8 | ♀'s diameter on the ſcale | J. D. |
| | | 45¾ | | | 45 | 51¾ | 0,10 | 21 | 1 | 1,5 | Ditto off | |
| | | | | | | | 0,15 | 2 | 0 | 59,8 | Ditto on | |
| | | 53 | — | | 53 | 6½ | 4,60 | 13½ | 31 | 34,8 | ☉'s horizontal diameter | |
| | | 55 | — | | 55 | 6½ | 4,60 | 14 | 31 | 35,2 | | |
| | | 59¼ | | | 59 | 21½ | 0,15 | 4 | 1 | 1,5 | ♀'s diameter on the ſcale | |
| | 6 | 0 | 41 | 6 | 0 | 47½ | 0,10 | 18 | 0 | 59,1 | Ditto off | |
| | | 1 | 49 | | 1 | 55½ | 0,10 | 21 | 1 | 1,5 | Ditto ditto | |
| | | 3 | 30 | | 3 | 36½ | 0,50 | 18 | 3 | 36,6 | Diſt. of ♀'s fartheſt limb from the ☉'s neareſt | |
| | | 4 | 40 | | 4 | 46½ | 0,50 | 14½ | 3 | 33,7 | Ditto | |
| | | 6 | 55 | | 7 | 1½ | 0,50 | 11 | 3 | 30,8 | Ditto | |
| | | 8 | 15 | | 8 | 21¼ | 0,50 | 9 | 3 | 29,2 | Ditto | |
| | | 15 | 6 | | 15 | 12¼ | 0,45 | 15 | 3 | 13,6 | Ditto | W. W. |
| | | 17 | 6 | | 17 | 12¼ | 0,45 | 8 | 3 | 7,9 | Ditto | |
| | | 19 | 6 | | 19 | 12¼ | 0,45 | 1 | 3 | 2,1 | Ditto | |
| | | 21 | 5 | | 21 | 11¼ | 0,40 | 21 | 2 | 58,0 | Ditto | |
| | | 25 | 27 | | 25 | 33 | 0,40 | 6 | 2 | 45,7 | Ditto | |
| | | 26 | 59 | | 27 | 1 | 0,40 | 2 : | 2 | 42,4 | Ditto hazy | |
| | | 28 | 19 | | 28 | 25 | 0,40 | 0 : : | 2 | 40,8 | Ditto | |
| | 7 | 0 | 40 | 7 | 0 | 45½ | The thread of light broke at the internal contact | | | | | W. W. |
| | | 0 | 43 | 7 | 0 | 48½ | Ditto | | | | | J. D. |
| | | 18 | 56 | 7 | 19 | 1¼ | The external contact very hazy, and the limbs badly defined | | | | | W. W. |
| | | 19 | 15 | 7 | 19 | 20¼ | Ditto | | | | | J. D. |

## REMARKS.

1. All the meaſurements of Venus's diameter; and alſo all thoſe of the Sun, which are not ſaid to be horizontal, were taken with the micrometer, in the ſame direction that the laſt preceding diſtance of the limbs of Venus and the Sun was meaſured with.

2. We were obliged to alter the rack-work of the micrometer before we began to meaſure any diſtances of the limbs, &c. in order to make it take in the diameter of Venus, off the ſcale.

3. The heavens at the beginning, and for a conſiderable time both before and after, were frequently obſcured by clouds: but in the intervals, the air was very clear, and the Sun's limbs extreamely well defined.

4. Soon after Venus was half immerged, a bright creſcent, or rim of light, encompaſſed all that part of her circumference which was off the Sun; thereby rendering her whole periphery viſible. This continued very bright until within a few minutes of the internal contact, and then vaniſhed away gradually.

5. We took for the inſtant of the firſt internal contact, the time when the leaſt viſible thread of light appeared behind the ſubſequent limb of Venus: but before that time, Venus's limb ſeemed within that of the Sun, and his limb appeared behind hers in two very obtuſe points, ſeeming as if they would run together in a broad ſtream, like two drops of oil; but which nevertheleſs did not happen, but joined in a very fine thread, at ſome diſtance from the exterior limb of Venus. This appearance was much more conſiderable at the egreſs than at the ingreſs; owing, as we apprehend, to the bad ſtate of the air at that time. We took for the inſtant of internal contact, at the egreſs, the time when the thread of light diſappeared before the preceeding limb of the planet, from which time W. W. took notice that he had told about 24" when the limbs of the Sun and Venus were apparently in contact: a circumſtance which he did not venture to attend to at the ingreſs.

6. We ſaw nothing like the appearance of an atmoſphere round Venus (unleſs the above-mentioned phænomena may be thought to proceed from thence) either at the beginning, end, or during the time of the tranſit: nor could we ſee any thing of a ſatellite; though we looked for it ſeveral times.

7. It may not be improper to add, that the hazineſs, complained of at the egreſs, was not owing to any accidental bad quality of the air at that time; it is continually ſo here to 10° or 12° above the horizon, and often even to 16° or 18°, in what may be called the cleareſt ſtate of the heavens.

## Obſervations for determining the Magnetic Variations at Prince of Wales's Fort on the North-weſt Coaſt of Hudſon's Bay, by W. W.

The variation compaſs, which I received from Mr. Robertſon, by order of the Royal Society, was, when I received it, a very good one, as appeared to me from ſeveral trials which I made of it in London, before it was put on board the ſhip; but when we arrived in Hudſon's Bay, and were ready to make uſe of it, we had the mortification to find that the needle thereof had, by ſome cauſe or other, entirely loſt its magnetic virtue. As the cold was, by the time that we made this diſcovery, much more intenſe than it probably was at the time that Mr. Ellis complains of a ſimilar circumſtance happening to him in thoſe parts, I was naturally led to try whether I could not benefit by his experience, and accordingly removed the compaſs into the room where we lived; which was kept very warm by a large fire, and by the houſe ſtove; and there it remained ever after, but without the leaſt effect.

In order to remedy this misfortune as much as lay in my power, I applied to Captain Richards, as ſoon as he arrived in the river this year; and deſired he would ſend me his azimuth compaſs on ſhore, with which requeſt he very kindly complied the next day; but the cloudy weather prevented me from making any obſervations before the 22d of Auguſt.

The compaſs is of the common form, and I judged that it would be beſt to make the obſervations about noon, when the Sun's azimuths change the faſteſt, and to note the times by the clock; which I did in the following manner:

| 1769 | Times by the clock | | | Magnetic azimuth | | | Variation weſt | | |
|---|---|---|---|---|---|---|---|---|---|
| Auguſt | h | ′ | ″ | ° | ′ | | ° | ′ | |
| ☽ 21 | 23 | 40 | 29 | 1 | 23 | W | 10 | 6 | Theſe obſervations were made by Captain Richards; the compaſs having been removed, and the card re-adjuſted after the firſt |
| | | 44 | 48 | 2 | 0 | W | 9 | 17 | |
| | | 49 | 35 | 3 | 20 | W | 9 | 2 | |
| | | 52 | 53 | 4 | 30 | W | 9 | 6 | |
| ♂ 22 | 0 | 6 | 40,1 | | | | | | The Sun tranſited the meridian |
| | | 23 | 18 | 15 | 15 | W | 9 | 43 | By myſelf; the compaſs having been moved, and the card re-adjuſted |
| | | 25 | 22 | 16 | 17 | W | 10 | 3 | |
| | | 27 | 8 | 16 | 39 | W | 9 | 50 | |
| | 23 | 28 | 59 | 2 | 38 | E | 9 | 49 | The compaſs placed as it was yeſterday before noon |
| | | 31 | 15 | 1 | 50 | E | 9 | 52 | |
| | | 34 | 5 | 0 | 47 | E | 9 | 59½ | |
| | | 42 | 20 | 2 | 0 | W | 10 | 3½ | The compaſs removed, &c. |
| | | 44 | 10 | 2 | 38 | W | 10 | 4½ | |
| | | 45 | 40 | 3 | 12 | W | 10 | 7½ | |
| | | 49 | 45 | 4 | 21 | W | 9 | 57 | Ditto |
| | | 52 | 44 | 5 | 20 | W | 9 | 51 | |
| | | 54 | 4 | 5 | 40 | W | 9 | 50 | |
| ☿ 23 | 0 | 6 | 38,6 | | | | | | The Sun tranſited the meridian |
| | | 12 | 43 | 11 | 25 | W | 9 | 24 | The compaſs removed, &c. |
| | | 25 | 13 | 15 | 28 | W | 9 | 18 | The compaſs again removed, and the card re-adjuſted |
| | | 26 | 26 | 16 | 7 | W | 9 | 33 | |
| | | 28 | 8 | 16 | 30 | W | 9 | 22 | |
| | | 34 | 38 | 18 | 40 | W | 9 | 24 | Ditto |
| | | 36 | 16 | 19 | 22 | W | 9 | 33½ | |
| | The mean is | | | | | | 9 | 41½ | |

Such are the beſt obſervations of this kind, which I am able to lay before this honourable and learned Society. It gives me much concern to find that they differ ſo widely from one another; more eſpecially as I am certain that I made them with all the care and circumſpection that I was capable of, and with an inſtrument which ſeemed to me good of its kind. But I flatter myſelf it will be conſidered, that, in making obſervations with this inſtrument, there are two unavoidable ſources of error, viz. in adjuſting the card to the line on the ſide of the compaſs-box, and in making the ſhadow of the thread to fall on the line of the index: I may likewiſe add a third error, which may be committed in reading of the vernier, as it only ſubdivides to every 5′; and if all theſe ſhould happen to fall the ſame way, their ſum, I preſume, may be conſiderable (when an inſtrument of ſo ſmall a radius is uſed), in the hands of the moſt ſkilful obſerver.

## The Latitude of Prince of Wales's Fort on the North-weſt coaſt of Hudſon's Bay, deduced from Obſervations of circumpolar Stars.

| 1769 | By ζ Urſæ Majoris | | | | | | |
|---|---|---|---|---|---|---|---|
| Date of the Obſervation. | | Latitude deduced | | | | | |
| Above the pole | Below the pole | 90 Arch | | | 96. Arch | | |
| | | ° | ′ | ″ | ° | ′ | ″ |
| Jan. 20 | Jan. 18 | 58 | 47 | 29½ | 58 | 47 | 53 |
| | 20 | 58 | 47 | 27 | 58 | 47 | 51 |
| 29 | 18 | 58 | 47 | 33½ | 58 | 47 | 52 |
| | 20 | 58 | 47 | 29 | 58 | 47 | 50 |
| The means of theſe are | | 58 | 47 | 30¼ | 58 | 47 | 51½ |

| 1769 | By η Urſæ Majoris | | | | | | |
|---|---|---|---|---|---|---|---|
| Jan. 20 | Jan. 18 | 58 | 47 | 51 | 58 | 48 | 6 |
| | 21 | 58 | 47 | 42 | 58 | 48 | 7 |
| | 29 | 58 | 47 | 46¾ | 58 | 48 | 2½ |
| | 30 | 58 | 47 | 53 | 58 | 48 | 7½ |
| 29 | 18 | 58 | 47 | 14 | 58 | 47 | 30½ |
| | 21 | 58 | 47 | 14¾ | 58 | 47 | 30¾ |
| | 29 | 58 | 47 | 9¼ | 58 | 47 | 36¼ |
| | 30 | 58 | 47 | 15½ | 58 | 47 | 32½ |
| Means of theſe are | | 58 | 47 | 32 | 58 | 47 | 48 |

| 1769 | By Capella | | | | | | |
|---|---|---|---|---|---|---|---|
| Date of the Obſervation | | Latitude deduced | | | | | |
| Above the pole | Below the pole | 90 Arch | | | 96 Arch | | |
| | | ° | ′ | ″ | ° | ′ | ″ |
| Jan. 29 | Jan. 28 | 58 | 47 | 23 | 58 | 47 | 36¾ |
| 30 | | 58 | 47 | 23½ | 58 | 47 | 31½ |
| 31 | | 58 | 47 | 24½ | 58 | 47 | 30¾ |
| Febr. 5 | | 58 | 47 | 28¼ | 58 | 47 | 39½ |
| 8 | | 58 | 47 | 34¼ | 58 | 47 | 48½ |
| 9 | | 58 | 47 | 31¾ | 58 | 47 | 37 |
| Jan. 29 | Jan. 29 | 58 | 47 | 30½ | 58 | 47 | 44½ |
| 30 | | 58 | 47 | 30½ | 58 | 47 | 38¾ |
| 31 | | 58 | 47 | 31¾ | 58 | 47 | 38 |
| Febr. 5 | | 58 | 47 | 34¾ | 58 | 47 | 46¾ |
| 8 | | 58 | 47 | 41¾ | 58 | 47 | 51¾ |
| 9 | | 58 | 47 | 40¼ | 58 | 47 | 44¼ |
| Jan. 29 | Feb. 10 | 58 | 47 | 22½ | 58 | 47 | 35¾ |
| 30 | | 58 | 47 | 23 | 58 | 47 | 30½ |
| 31 | | 58 | 47 | 24 | 58 | 47 | 29¾ |
| Febr. 5 | | 58 | 47 | 26¾ | 58 | 47 | 38½ |
| 8 | | 58 | 47 | 33¾ | 58 | 47 | 43½ |
| 9 | | 58 | 47 | 32¼ | 58 | 47 | 36 |
| 14 | | 58 | 47 | 32¾ | 58 | 47 | 32½ |
| Jan. 29 | Febr. 13 | 58 | 47 | 21 | 58 | 47 | 35¾ |
| 30 | | 58 | 47 | 21½ | 58 | 47 | 30½ |

1769

1769 By Capella continued

| Date of the Obſervation | | Latitude deduced | |
|---|---|---|---|
| Above the pole | Below the pole | 90 Arch | 96 Arch |
| | | ° ′ ″ | ° ′ ″ |
| Jan. 31 | Febr. 13 | 58 47 22½ | 58 47 29¾ |
| Febr. 5 | | 58 47 25¼ | 58 47 38½ |
| 8 | | 58 47 32¼ | 58 47 43½ |
| 9 | | 58 47 30¾ | 58 47 36 |
| 14 | | 58 47 31¼ | 58 47 32½ |
| 24 | | 58 47 31¼ | 58 47 36¾ |
| Means of theſe are | | 58 47 29 | 58 47 37½ |

By α Perſei

| | | | |
|---|---|---|---|
| Jan. 29 | Jan. 29 | 58 47 23¾ | 58 47 28½ |
| 31 | | 58 47 28¼ | 58 47 33¼ |
| Febr. 14 | | 58 47 33 | 58 47 38 |
| Means of theſe are | | 58 47 28⅓ | 58 47 33¼ |

*⁎* Theſe four ſtars paſſed the meridian to the ſouthward of the zenith, when above the pole; which circumſtance rendered them vaſtly convenient for determining the latitude of the place, as the error of the line of collimation of the quadrant is thereby entirely excluded, provided it did not alter in the interval between the obſervations.

1768 By the Pole Star

| Date of the Obſervation | | Latitude deduced | |
|---|---|---|---|
| Above the pole | Below the pole | 90 Arch | 96 Arch |
| | 1769 | ° ′ ″ | ° ′ ″ |
| Decem. 2 | January 1 | 58 47 25½ | 58 47 37 |
| | Febr. 8 | 58 47 6 | 58 47 24½ |
| | 24 | 58 47 6½ | 58 47 24 |
| 3 | January 1 | 58 47 32½ | 58 47 33 |
| | Febr. 8 | 58 47 7½ | 58 47 24½ |
| | 24 | 58 47 8½ | 58 47 24 |
| 15 | January 1 | 58 47 37 | 58 47 38½ |
| | Febr. 8 | 58 47 18½ | 58 47 26 |
| | 24 | 58 47 18 | 58 47 25½ |
| 19 | January 1 | 58 47 25½ | 58 47 37½ |
| | Febr. 8 | 58 47 7½ | 58 47 25 |
| 1769 | 24 | 58 47 8½ | 58 47 24½ |
| Jan. 18 | January 1 | 58 47 25½ | 58 47 35½ |
| | Febr. 8 | 58 47 6 | 58 47 23 |
| | 24 | 58 47 7½ | 58 47 22½ |
| Means of theſe are | | 58 47 16 | 58 47 28⅓ |

The Latitude of Prince of Wales's Fort deduced from Obſervations of the Sun, and of ſuch ſtars as paſſed ſouth of the zenith.

| By the Sun | | Latitude deduced | |
|---|---|---|---|
| 1768 | Declination | 90 Arch | 96 Arch |
| | ° ′ ″ | | |
| | N. | ° ′ ″ | ° ′ ″ |
| Sept. 20 | 0 42 9 | 58 48 19 | 58 47 57 |
| 21 | 0 18 44½ | 58 48 26½ | 58 48 14½ |
| | S. | | |
| 22 | 0 4 40 | 58 48 15½ | 58 48 2 |
| 30 | 3 11 59½ | 58 48 15½ | 58 48 3 |
| Oct. 1 | 3 35 19½ | 58 48 21½ | 58 48 33 |
| 14 | 8 32 49 | 58 48 18½ | 58 48 12 |
| 17 | 9 39 4 | 58 48 32½ | 58 48 7½ |
| 1769 | N. | | |
| June 20 | 23 28 5½ | 58 47 38½ | 58 47 26 |
| 22 | 23 27 40 | 58 48 10½ | 58 47 46 |
| Auguſt 2 | 17 36 18½ | 58 48 12½ | 58 48 6½ |
| 5 | 16 48 8½ | 58 48 16 | 58 48 7 |
| 22 | 11 33 11 | 58 48 14 | 58 47 27½ |
| The means of theſe are | | 58 48 15 | 58 48 0 |

| By Capella | | Latitude deduced | |
|---|---|---|---|
| 1768 | Declination | 90 Arch | 96 Arch |
| | ° ′ ″ | ° ′ ″ | ° ′ ″ |
| Oct. 13 | 45 44 10,3 | 58 47 34½ | 58 47 33½ |
| 14 | | 58 48 3½ | 58 47 46½ |
| 17 | | 58 47 48 | 58 47 39½ |
| The means of theſe are | | 58 47 48½ | 58 47 39½ |

By α Perſei

| | | | |
|---|---|---|---|
| Sept. 29 | 49 1 9 | 58 47 47 | 58 47 53½ |
| Oct. 14 | 49 1 10 | 58 47 47 | 58 47 39½ |
| 17 | | 58 47 44 | 58 47 21½ |
| The means of theſe are | | 58 47 46 | 58 47 38¼ |

| By α Lyræ 1768 | Declination | Latitude deduced 90 Arch | Latitude deduced 96 Arch |
|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ |
| Oct. 16 | 38 34 49 | 58 47 21½ | 58 47 31½ |
| 17 | | 58 47 24 | 48 47 35½ |
| The means of theſe are | | 58 47 22¾ | 58 47 33½ |

By α Aquilæ

| 1768 | Declination | 90 Arch | 96 Arch |
|---|---|---|---|
| Sept. 29 | 8 16 22½ | 58 47 51½ | 58 47 18½ |
| Oct. 13 | | 58 47 52 | 58 47 23 |
| 14 | | 58 48 6 | 58 47 44 |
| 16 | | 58 48 11 | 58 47 48½ |
| The means of theſe are | | 58 48 0 | 58 47 33½ |

By α Cygni

| 1768 | Declination | 90 Arch | 96 Arch |
|---|---|---|---|
| Oct. 2 | 44 27 48 | 58 47 21 | 58 47 0 |
| 13 | | 58 47 26½ | 58 47 17 |
| 16 | | 58 47 32 | 58 47 32 |
| 17 | | 58 47 38 | 58 47 37 |
| The means of theſe are | | 58 47 29½ | 58 47 21½ |

By α Perſei

| 1768 | Declination | 90 Arch | 96 Arch |
|---|---|---|---|
| Nov. 16 | 49 1 11 | 58 47 50 | 58 47 20½ |
| 18 | | 58 47 29 | 58 47 12½ |
| 19 | | 58 48 11 | 58 48 2 |
| 28 | | 58 48 0 | 58 47 34 |
| Decem. 10 | | 58 48 14 | 58 48 2 |
| The means of theſe are | | 58 47 57 | 58 47 38 |

| By Capella 1768 | Declination | Latitude deduced 90 Arch | Latitude deduced 96 Arch |
|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ |
| Nov. 16 | 45 44 10½ | 58 47 54,2 | 58 47 29,0 |
| 18 | | 58 47 43,– | 58 47 12,2 |
| 28 | | 58 47 26,7 | 58 47 18,5 |
| 29 | | 58 47 38,9 | 58 47 32,1 |
| The means of theſe are | | 58 47 40,7 | 58 47 23,– |

1769 By β Draconis

| 1769 | Declination | 90 Arch | 96 Arch |
|---|---|---|---|
| June 24 | 52 28 50 | 58 47 59 | 58 47 36 |
| July 20 | | 58 48 14 | 58 47 55 |
| 21 | | 58 48 13 | 58 48 5 |
| 22 | | 58 47 58 | 58 47 45 |
| The means of theſe are | | 58 48 6 | 58 47 50¼ |

By γ Draconis

| 1769 | Declination | 90 Arch | 96 Arch |
|---|---|---|---|
| June 24 | 51 31 29½ | 58 47 37 | 58 47 29 |
| July 2 | | 58 47 38½ | 58 47 40 |
| 7 | | 58 47 43 | 38 47 46½ |
| 18 | | 58 47 50½ | 58 47 43 |
| 20 | | 58 47 44 | 58 47 40 |
| 21 | | 58 47 43 | 58 47 44 |
| 22 | | 58 47 48½ | 58 47 46 |
| 28 | | 58 47 50 | 58 47 48 |
| 30 | | 58 47 40½ | 58 47 39 |
| Auguſt 4 | | 58 47 48½ | 58 47 41 |
| The means of theſe are | | 58 47 44½ | 58 47 41½ |

The Latitude of Prince of Wales's Fort deduced from Obſervations of Stars on the Northern Meridian.

| By α Urſæ Majoris 1768 | Polar diſt. | Latitude deduced 90 Arch | Latitude deduced 96 Arch |
|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ |
| Decem. 2 | 27 0 24 | 58 47 14 | 58 47 21 |
| 3 | | 58 47 3 | 58 47 12 |
| 6 | | 58 46 57 | 58 47 14 |
| 15 | | 58 47 8 | 58 47 20 |
| The means of theſe are | | 58 47 5½ | 58 47 16¾ |

| By γ Urſæ Majoris 1768 | Polar diſt. | Latitude deduced 90 Arch | Latitude deduced 96 Arch |
|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ |
| Decem. 15 | 35 1 15 | 58 46 50 | 58 47 10 |
| | | 58 46 58 | 58 47 8 |
| | | 58 46 59 | 58 47 19 |
| The means of theſe are | | 58 46 55⅔ | 58 47 12⅓ |

1769

| By η Urſæ Majoris | | Latitude deduced | |
|---|---|---|---|
| 1769 | Polar diſt. | 90 Arch | 96 Arch |
| | ° ′ ″ | ° ′ ″ | ° ′ ″ |
| January 1 | 59 31 35 | 58 47 10 | 58 47 8 |
| 2 | | 58 47 2 | 58 47 14 |
| The means of theſe are | | 58 47 6 | 58 47 11 |

| | ° ′ ″ | ° ′ ″ |
|---|---|---|
| The means of all the compariſons of ζ Urſæ Majoris | 58 47 30¼ | 58 47 51½ |
| Ditto of η Urſæ Majoris (conſidered as circumpolar) | 58 47 32 | 58 47 48 |
| Ditto of Capella ditto | 58 47 29 | 58 47 37½ |
| Ditto of α Perſei ditto | 58 47 28½ | 58 47 33¼ |
| Ditto of the Pole ſtar | 58 47 16 | 58 47 28½ |
| The means of all the circumpolar ſtars are | 58 47 27 | 58 47 39¾ |
| The means of α Urſæ Majoris | 58 47 5½ | 58 47 16¾ |
| Ditto of γ | 58 46 55⅔ | 58 47 12⅓ |
| Ditto of η | 58 47 6 | 58 47 11 |
| The means of all the ſtars taken on the northern meridian are | 58 47 2,4 | 58 47 13⅓ |
| And the means of the above two are | 58 47 14¾ | 58 47 26½ |
| The means of all the ſolar obſervations are | 58 48 15 | 58 48 0 |
| Ditto of Capella taken on the ſouthern meridian alone | 58 47 48½ | 58 47 39½ |
| Ditto of α Perſei | 58 47 46 | 58 47 38¼ |
| Ditto of α Lyræ | 58 47 22¾ | 58 47 33½ |
| Ditto of α Aquilæ | 58 48 0 | 58 47 33½ |
| Ditto of α Cygni | 58 47 29½ | 58 47 21½ |
| Ditto of Capella after the line of Collimation altered | 58 47 40,7 | 58 47 23 |
| Ditto of α Perſei ditto | 58 47 57 | 58 47 38 |
| Ditto of β Draconis, the line of collimation having again altered | 58 48 6 | 58 47 50¼ |
| Ditto of γ ——— | 58 47 44½ | 58 47 41½ |
| The means of all the obſervations taken ſouthward of the zenith are | 58 47 49 | 58 47 38 |
| The means of the circumpolar and northern ſtars | 58 47 14¾ | 58 47 26½ |
| And, by taking the mean of both, the latitude is North | 58 47 32 | 58 47 32¼ |

The error of the line of collimation of the quadrant was 23″,6 for the 90 arch, and 19″,7 for the 96 arch, to be ſubtracted from all zenith diſtances, from the beginning of September, 1768, to the latter end of October; from about which time, till towards the latter end of December, it appears to have been 29″,4′ for the 90° arch, and 36″,7 for the 96 arch, to be added to all zenith diſtances taken in that interval. About the latter end of December it altered again, but I had no opportunity of determining its quantity, and ſeemed to be pretty conſtant all the month of January, 1769; but, about the beginning or middle of February, it began again to alter, and continued uncertain until the middle or latter end of June, when it became conſtant again, and ſeemed to me to be, by the obſervations of β and γ Draconis, 21″,6 and 15″,5 to be ſubtracted from the 90 and 96 arches, reſpectively.

W. W.

## A TABLE of the EQUATIONS to Equal Altitudes. Lat. 58° 47′½.

Half the Interval between the Obſervations.

| The ☉'s longitude | h ′ II 20 | h ′ II 30 | h ′ II 40 | h ′ II 50 | h ′ III 0 | h ′ III 10 | h ′ II 20 | h ′ III 30 | h ′ III 40 | h ′ III 50 | h ′ IV 0 | h ′ IV 10 | h ′ IV 20 | h ′ IV 30 | h ′ IV 40 | h ′ IV 50 | h ′ V 0 | h ′ V 10 | h ′ V 20 | h ′ V 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 — 0 | 26,6 | 26,8 | 27,0 | 27,3 | 27,6 | 27,9 | 28,3 | 28,7 | 29,2 | 29,6 | 30,1 | 30,6 | 31,2 | 31,8 | 32,4 | 33,1 | 33,8 | 34,5 | 35,3 | 36,2 |
| 5 | 25,9 | 26,1 | 26,4 | 26,7 | 27,0 | 27,4 | 27,8 | 28,2 | 28,7 | 29,1 | 29,6 | 30,1 | 30,7 | 31,3 | 31,9 | 32,6 | 33,3 | 34,1 | 35,0 | 35,9 |
| 10 | 25,2 | 25,4 | 25,7 | 26,0 | 26,3 | 26,7 | 27,1 | 27,5 | 28,0 | 28,4 | 28,9 | 29,5 | 30,1 | 30,7 | 31,3 | 32,0 | 32,7 | 33,5 | 34,4 | 35,3 |
| 15 | 24,3 | 24,5 | 24,8 | 25,1 | 25,4 | 25,8 | 26,2 | 26,6 | 27,1 | 27,6 | 28,1 | 28,6 | 29,2 | 29,8 | 30,5 | 31,2 | 31,9 | 32,6 | 33,6 | 34,5 |
| 20 | 23,2 | 23,5 | 23,8 | 24,1 | 24,4 | 24,8 | 25,2 | 25,6 | 26,1 | 26,6 | 27,1 | 27,6 | 28,2 | 28,8 | 29,5 | 30,2 | 30,9 | 31,6 | 32,6 | 33,5 |
| 25 | 22,0 | 22,3 | 22,6 | 22,9 | 23,2 | 23,6 | 24,0 | 24,4 | 24,8 | 25,3 | 25,9 | 26,4 | 26,9 | 27,6 | 28,3 | 29,0 | 29,7 | 30,4 | 31,4 | 32,3 |
| I — 0 | 20,7 | 21,0 | 21,3 | 21,6 | 21,9 | 22,3 | 22,7 | 23,1 | 23,6 | 24,0 | 24,5 | 25,0 | 25,6 | 26,2 | 26,9 | 27,6 | 28,4 | 29,1 | 30,0 | 30,9 |
| 5 | 19,3 | 19,6 | 19,9 | 20,2 | 20,5 | 20,9 | 21,3 | 21,7 | 22,1 | 22,6 | 23,1 | 23,6 | 24,1 | 24,7 | 25,3 | 26,0 | 26,8 | 27,6 | 28,4 | 29,3 |
| 10 | 17,9 | 18,1 | 18,4 | 18,7 | 19,0 | 19,3 | 19,7 | 20,1 | 20,5 | 21,0 | 21,5 | 22,0 | 22,5 | 23,0 | 23,6 | 24,3 | 25,1 | 25,8 | 26,6 | 27,5 |
| 1 | 16,3 | 16,5 | 16,8 | 17,1 | 17,4 | 17,7 | 18,1 | 18,4 | 18,8 | 19,2 | 19,7 | 20,2 | 20,6 | 21,2 | 21,8 | 22,5 | 23,2 | 23,8 | 24,6 | 25,4 |
| 20 | 14,7 | 14,9 | 15,1 | 15,4 | 15,7 | 16,0 | 16,3 | 16,6 | 17,0 | 17,4 | 17,9 | 18,3 | 18,7 | 19,2 | 19,8 | 20,4 | 21,1 | 21,7 | 22,4 | 23,2 |
| 25 | 13,0 | 13,2 | 13,4 | 13,6 | 13,9 | 14,1 | 14,4 | 14,8 | 15,2 | 15,5 | 15,9 | 16,2 | 16,6 | 17,1 | 17,7 | 18,2 | 18,8 | 19,4 | 20,0 | 20,7 |
| II — 0 | 11,3 | 11,4 | 11,6 | 11,8 | 12,0 | 12,2 | 12,5 | 12,8 | 13,1 | 13,4 | 13,8 | 14,2 | 14,4 | 14,9 | 15,5 | 15,9 | 16,4 | 16,9 | 17,5 | 18,1 |
| 5 | 9,5 | 9,6 | 9,7 | 9,9 | 10,1 | 10,3 | 10,5 | 10,8 | 11,0 | 11,3 | 11,6 | 11,8 | 12,1 | 12,6 | 13,1 | 13,4 | 13,8 | 14,3 | 14,8 | 15,4 |
| 10 | 7,6 | 7,7 | 7,8 | 7,9 | 8,1 | 8,3 | 8,5 | 8,7 | 8,9 | 9,1 | 9,4 | 9,5 | 9,7 | 10,1 | 10,6 | 10,9 | 11,2 | 11,6 | 12,0 | 12,5 |
| 15 | 5,7 | 5,8 | 5,9 | 6,0 | 6,1 | 6,2 | 6,4 | 6,6 | 6,8 | 6,9 | 7,1 | 7,2 | 7,3 | 7,6 | 8,0 | 8,2 | 8,5 | 8,8 | 9,1 | 9,4 |
| 20 | 3,8 | 3,8 | 3,9 | 4,0 | 4,1 | 4,2 | 4,3 | 4,4 | 4,6 | 4,6 | 4,8 | 4,9 | 4,9 | 5,1 | 5,4 | 5,5 | 5,7 | 5,9 | 6,1 | 6,3 |
| 25 | 1,9 | 1,9 | 2,0 | 2,0 | 2,1 | 2,1 | 2,2 | 2,2 | 2,3 | 2,3 | 2,4 | 2,5 | 2,5 | 2,6 | 2,7 | 2,8 | 2,9 | 3,0 | 3,1 | 3,2 |
| III + 0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| 5 | 1,9 | 1,9 | 2,0 | 2.0 | 2,1 | 2,1 | 2,2 | 2,2 | 2,3 | 2,3 | 2,4 | 2,5 | 2,5 | 2,6 | 2,7 | 2,8 | 2,9 | 3,0 | 3,1 | 3,2 |
| 10 | 3,8 | 3,8 | 3,9 | 4,0 | 4,1 | 4,2 | 4,3 | 4,4 | 4,6 | 4,6 | 4,8 | 4,9 | 4,9 | 5,1 | 5,4 | 5,5 | 5,7 | 5,9 | 6,1 | 6,3 |
| 15 | 5,7 | 5,8 | 5,9 | 6,0 | 6,1 | 6,3 | 6,4 | 6,6 | 6,8 | 6,9 | 7,1 | 7.2 | 7,4 | 7,6 | 8,0 | 8,2 | 8,5 | 8,8 | 9,1 | 9,4 |
| 20 | 7,6 | 7,7 | 7,8 | 7,9 | 8,1 | 8,3 | 8,5 | 8,7 | 9,0 | 9,2 | 9,4 | 9,5 | 9,7 | 10,1 | 10,6 | 10,9 | 11,2 | 11,6 | 12,0 | 12,5 |
| 25 | 9,4 | 9,5 | 9,7 | 9,8 | 10,0 | 10,2 | 10,5 | 10,8 | 11,1 | 11,3 | 11,6 | 11,8 | 12,0 | 12,5 | 13,1 | 13,4 | 13,8 | 14,3 | 14,8 | 14,3 |
| IV + 0 | 11,2 | 11,3 | 11,5 | 11,7 | 11,9 | 12,1 | 12,5 | 12,8 | 13,1 | 13,4 | 13,7 | 14,0 | 14,4 | 14,9 | 15,4 | 15,8 | 16,3 | 16,8 | 17,4 | 18,0 |
| 5 | 12,9 | 13,1 | 13,3 | 13,5 | 13,7 | 14,0 | 14,4 | 14,7 | 15,0 | 15.4 | 15,7 | 16,2 | 16,6 | 17,1 | 17,6 | 18,1 | 18,7 | 19,3 | 19,9 | 20,6 |
| 10 | 14.6 | 14,8 | 15,0 | 15,2 | 15,5 | 15,8 | 16,2 | 16,5 | 16,9 | 17,3 | 17,7 | 18,2 | 18,7 | 19,2 | 19,7 | 20,3 | 20,9 | 21,6 | 22,3 | 23,0 |
| 15 | 16,2 | 16,4 | 16,6 | 16,9 | 17,2 | 17 6 | 18,0 | 18,3 | 18,6 | 19,1 | 19,5 | 20,0 | 20,6 | 21,1 | 21,7 | 22,3 | 23,0 | 23,7 | 24,4 | 25,2 |
| 20 | 17,7 | 17,9 | 18,2 | 18,5 | 18,8 | 19,2 | 19,6 | 19,9 | 20,3 | 20,8 | 21,3 | 21,8 | 22,4 | 22,9 | 23,5 | 24.2 | 24,9 | 25,6 | 26,4 | 27,2 |
| 25 | 19,1 | 19,4 | 19,7 | 20,0 | 20,3 | 20,7 | 21,1 | 21,4 | 21,8 | 22,3 | 22,9 | 23.4 | 24,0 | 24,6 | 25,2 | 25 9 | 26,6 | 27,3 | 28,1 | 29,0 |
| V + 0 | 20 5 | 20,8 | 21,1 | 21,4 | 21,7 | 22,1 | 22,5 | 22,9 | 23,3 | 23,8 | 24,3 | 24.8 | 25,4 | 26,1 | 26,7 | 27,5 | 28,1 | 28,9 | 29,7 | 30,6 |
| 5 | 21,7 | 22,0 | 22,4 | 22,7 | 23,0 | 23,4 | 23,8 | 24,2 | 24,5 | 25,1 | 25,6 | 26,1 | 26,7 | 27,4 | 28,1 | 28,8 | 29,4 | 30,2 | 31,1 | 32,0 |
| 10 | 22,9 | 23,2 | 23,5 | 23,8 | 24,2 | 24,5 | 24,9 | 25,3 | 25,8 | 26,2 | 26,7 | 27,2 | 27 8 | 28,5 | 29,3 | 30,0 | 30,6 | 31,4 | 32,3 | 33,2 |
| 15 | 24,0 | 24,2 | 24,5 | 24,8 | 25,2 | 25,5 | 25,9 | 26,3 | 26,8 | 27,2 | 27,7 | 28,2 | 28,8 | 29,5 | 30,3 | 31,0 | 31,6 | 32,4 | 33,2 | 34,1 |
| 20 | 24,9 | 25,1 | 25,4 | 25,7 | 26,1 | 26,4 | 26,8 | 27,2 | 27,7 | 28,1 | 28,6 | 29,1 | 29,7 | 30,4 | 31,1 | 31,8 | 32,4 | 33,2 | 34.0 | 34,9 |
| 25 | 25,7 | 25,9 | 26,1 | 26,4 | 26,8 | 27,1 | 27,5 | 27,9 | 28,4 | 28,8 | 29,3 | 29,8 | 30,3 | 31,0 | 31,7 | 32,3 | 33,0 | 33,7 | 34,5 | 35,4 |
| VI + 0 | 26,3 | 26,5 | 26,7 | 27,0 | 27,4 | 27,7 | 28,1 | 28,5 | 28,9 | 29,3 | 29,8 | 30,3 | 30,8 | 31,4 | 22.1 | 32,7 | 33,4 | 34,1 | 34,9 | 35,8 |
| 5 | 26,7 | 26,9 | 27,1 | 27,4 | 27,8 | 28,1 | 28,4 | 28,8 | 29,2 | 29,6 | 30,1 | 30,5 | 31,0 | 31,6 | 32,3 | 32,8 | 33,5 | 34,3 | 35,0 | 35,8 |
| 10 | 27,0 | 27,2 | 27,4 | 27 7 | 28,0 | 28,3 | 28,6 | 28,9 | 29,3 | 29,7 | 30,2 | 30,6 | 31,1 | 31,7 | 32,3 | 32,8 | 33,5 | 34,3 | 35,0 | 35,7 |
| 15 | 27,0 | 27,2 | 27,4 | 27,7 | 28,0 | 28,3 | 28,6 | 28,9 | 29,2 | 29,6 | 30,1 | 30,5 | 31,0 | 31,5 | 32,0 | 32,5 | 33,2 | 33,9 | 34,6 | 35,3 |
| 20 | 26,9 | 27,1 | 27,3 | 27,5 | 27,8 | 28,1 | 28,4 | 28,6 | 28,9 | 29,3 | 29,8 | 30,2 | 30,6 | 31,0 | 31,4 | 32,1 | 32,8 | 33,4 | 34,1 | 34,7 |
| 25 | 26,6 | 26,7 | 26,9 | 27,1 | 27,3 | 27,6 | 27,9 | 28,1 | 28,4 | 28,8 | 29,2 | 29,6 | 29,9 | 30,3 | 30,8 | 31,4 | 32,0 | 32,6 | 33,2 | 33,8 |
| VII + 0 | 26,1 | 26,1 | 26,3 | 26,5 | 26,7 | 26,9 | 27,2 | 27,4 | 27,8 | 28,1 | 28,4 | 28,7 | 29,0 | 29,4 | 29,9 | 30,4 | 31,0 | 31,6 | 32,1 | 32,7 |

The inſtruments uſed in making the preceding obſervations were :

1. A clock, made by Mr. Ellicot, with an apparatus for correcting the effects of heat and cold ; the ſame which Meſſieurs Maſon and Dixon had to the Cape of Good Hope in the year 1761.

2. An aſtronomical quadrant, made by Mr. Bird, of one foot radius.

3. Two reflecting teleſcopes, of two feet focus, made by Mr. Short ; and a divided object-glaſs micrometer, made by the ſame gentleman, of 501,45 inches focal length.

We uſed the micrometer with a magnifying power of 60 ; the contacts of Venus with the Sun's limb were obſerved with a magnifying power of 120, and all the other obſervations with one of 90.

Both the thermometers, uſed in the preceding obſervations, were according to Fahrenheit's ſcale ; and the characters + and —, which are annexed to their altitudes, denote that they ſtood ſo many degrees above or below the cypher reſpectively : where neither of thoſe characters appears, the number is to be underſtood above the cypher.

LXVI. *Extract*